

April 2016

Revision 16A

MAGNASTOR®

(Modular Advanced Generation
Nuclear All-purpose STORAGE)

FINAL SAFETY
ANALYSIS REPORT
Amendment 7
Responses to
Request for
Additional Information

NON-PROPRIETARY VERSION

Docket No. 72-1031



Enclosure 1

**NAC INTERNATIONAL
RESPONSE TO THE
UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REQUEST FOR ADDITIONAL INFORMATION

January 2016

**FOR REVIEW OF THE CERTIFICATE OF COMPLIANCE NO. 1031,
AMENDMENT NO. 7**

(TAC NO. L24757 DOCKET NO. 72-1031)

April 2016

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**NAC INTERNATIONAL RESPONSE
TO
REQUEST FOR SUPPLEMENTAL INFORMATION**

STRUCTURAL EVALUATION

3.1 Clarify the meaning of Technical Specification (TS) 4.3.1(i).

The staff is unclear on the meaning of TS 4.3.1(i) and has the following specific questions:

- a. Can the MAGNASTOR cask be used in a seismic environment that exceeds the maximum design basis earthquake (DBE) acceleration of 0.37g in the horizontal direction (without cask sliding) and 0.25g in the vertical direction at the ISFSI pad top surface?
- b. If the MAGNASTOR cask can be used in a seismic environment that exceeds the DBE stated in TS 4.3.1(i), what is the purpose of the analysis that established the maximum DBE values that preclude tip-over without cask sliding?
- c. What is the purpose of a bollard system if one is used? Is it intended to only inhibit sliding due to seismic activity, or can it be used to inhibit tip-over as well?

This information is needed to determine compliance with 10 CFR 72.236(b).

NAC International Response to Structural Evaluation RAI 3.1:

The current MAGNASTOR technical specifications provide a maximum design basis earthquake pad top surface accelerations for which a MAGNASTOR system will not tip-over. As written, the MAGNASTOR system can't be used at a site with pad top surface accelerations greater than 0.37g (horizontal) and 0.25g (vertical). The purpose of the existing analysis is to demonstrate the cask will not tip-over assuming a coefficient of friction of 1.0 at the pad top surface and with accelerations less than or equal to 0.37g (horizontal) and 0.25g (vertical). Thus, there are no pad surface coefficient of friction requirements in the MAGNASTOR technical specifications. The purpose of the bollard system is to give a general licensee whose pad top surface accelerations are greater than 0.37g (horizontal) and 0.25g (vertical) the ability of implementing the MAGNASTOR system.

The bollard system does not necessarily restrict sliding but ultimately prevents the cask from tipping over when the pad surface accelerations are in excess of 0.37g (horizontal) and 0.25g (vertical). It is up to the general licensee to evaluate their bollard design such that any sliding between the bollards does not result in an impact with a bollard that has accelerations greater than what is analyzed in the non-mechanistic tip over event in the FSAR. Therefore, the bollard design would allow the general licensee a way of implementing the MAGNASTOR system at a site with pad top surface accelerations greater than 0.37g (horizontal) and 0.25g (vertical).

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THERMAL EVALUATION

- 4.1 Demonstrate that the 3 dimensional ANSYS model used to evaluate the drying phase of the Passive MAGNASTOR Transfer Cask (PMTC) is numerically consistent with previous models of the MTC presented to evaluate the drying phase.

In reviewing past submittals on the MAGNASTOR storage system for background and completeness, the staff noted that the component temperatures of the fuel and the basket were significantly lower than the same component temperatures for the new PMTC. Based on the safety analysis report (SAR) text provided to the staff, it is not evident within the modeling approach why there should be such a large delta in those temperatures given that the only design change from the MAGNASTOR Transfer Cask is the neutron shield material.

Specifically, the NRC staff refers the applicant to Table 4.4-9, for the 30 kW case which reports component temperatures for the fuel and basket as 643° F and 614° F (637° F and 608° F in Rev. 0) respectively, and the 30 kW case presented in the unlabeled table at the bottom of pp. 4.10.2-1.

The staff noted that the reported ambient temperature for the PMTC is 104°F and the cooling water inlet temperature is 125°F. A comparison table showing the critical analysis parameters for the MTC and the PMTC along with a narrative explaining the differences in the modeling approaches would be helpful in making the safety determination.

This information is necessary to determine compliance with 10 CFR 72.122 h (1).

NAC International Response to Thermal Evaluation RAI 4.1:

Thermal transient analysis is performed for the vacuum condition using a three-dimension ANSYS model for both the standard MAGNASTOR transfer cask (MTC) and the new Passive MAGNASTOR transfer cask (PMTC). The models are identical except the boundary conditions and the initial conditions as shown in Table 4.1-1.

Table 4.1-1 Comparison of Key Parameters for the 3-D ANSYS Models for Vacuum Phase (Transient Analysis)

	MTC (SAR Section 4.4.1.5)	PMTC (SAR Section 4.10.1.5)
Canister outer surface temperature ¹	116°F	134°F
Initial temperature ²	127°F	143°F
B.C. on canister bottom plate outer surface ³	Constant temperature of 107°F applied	Adiabatic
B.C. on canister lid outer surface ³	Convection Film Coefficient applied	Adiabatic
Maximum fuel temperature at the end of vacuum drying (30 kW Case)	643°F	663°F
Maximum basket temperature at the end of vacuum drying (30 kW Case)	614°F	635°F

Notes

1. The temperature profile at the canister shell surface from a steady state analysis using a two-dimensional axisymmetric FLUENT model is used as the boundary condition of the three-dimensional ANSYS model. The temperature profile at the canister shell in the FLUENT model is affected by the temperature and mass flow rate of the cooling water in the annulus. The cooling water temperature at the inlet in the two-dimensional model is 100°F and 125°F for the MTC and PMTC respectively. The mass flow rate of the cooling water is 47 GPM and 100 GPM for the MTC and PMTC respectively. See Table 4.1-2 for more details of the comparison of the 2-D FLUENT models used for MTC and PMTC. The maximum temperature at the canister outer surface (in contact with the cooling water in the annulus) is reported in the table above.
2. The initial temperature corresponds to the maximum fuel temperature determined by steady state analysis using a two-dimensional axisymmetric FLUENT model for the Water Phase (canister filled with water). This temperature is conservatively applied to the entire model (3-D ANSYS model) as initial condition of the thermal transient analysis for the vacuum condition.
3. The temperature at top and bottom of the canister outer surface has an insignificant effect on the transient analysis results.

The maximum temperatures for the fuel and basket for the 30 kW case at the end of the 32-hour vacuum time are also listed in Table 4.1-1.

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Table 4.1-2 Model Comparison for Vacuum Phase (2-D Axisymmetric FLUENT to
determine Canister shell temperature profile, Steady State Analysis)



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THERMAL EVALUATION

- 4.2 Provide a comparison of the modeling approaches used for each of the transfer phases for both the MTC and PMTC as well as a summary table showing critical component temperatures following each phase.

SAR Chapter 4.10 summarizes the analytical approach including the models used by the applicant to verify the thermal effectiveness, however, the staff is unclear whether there are any significant deviations in the analytical approach which might alter the conclusions drawn in the confirmatory calculations performed by the NRC staff for the MTC.

This information is necessary to determine compliance with 10 CFR 72.122 h (1).

NAC International Response to Thermal Evaluation RAI 4.2:

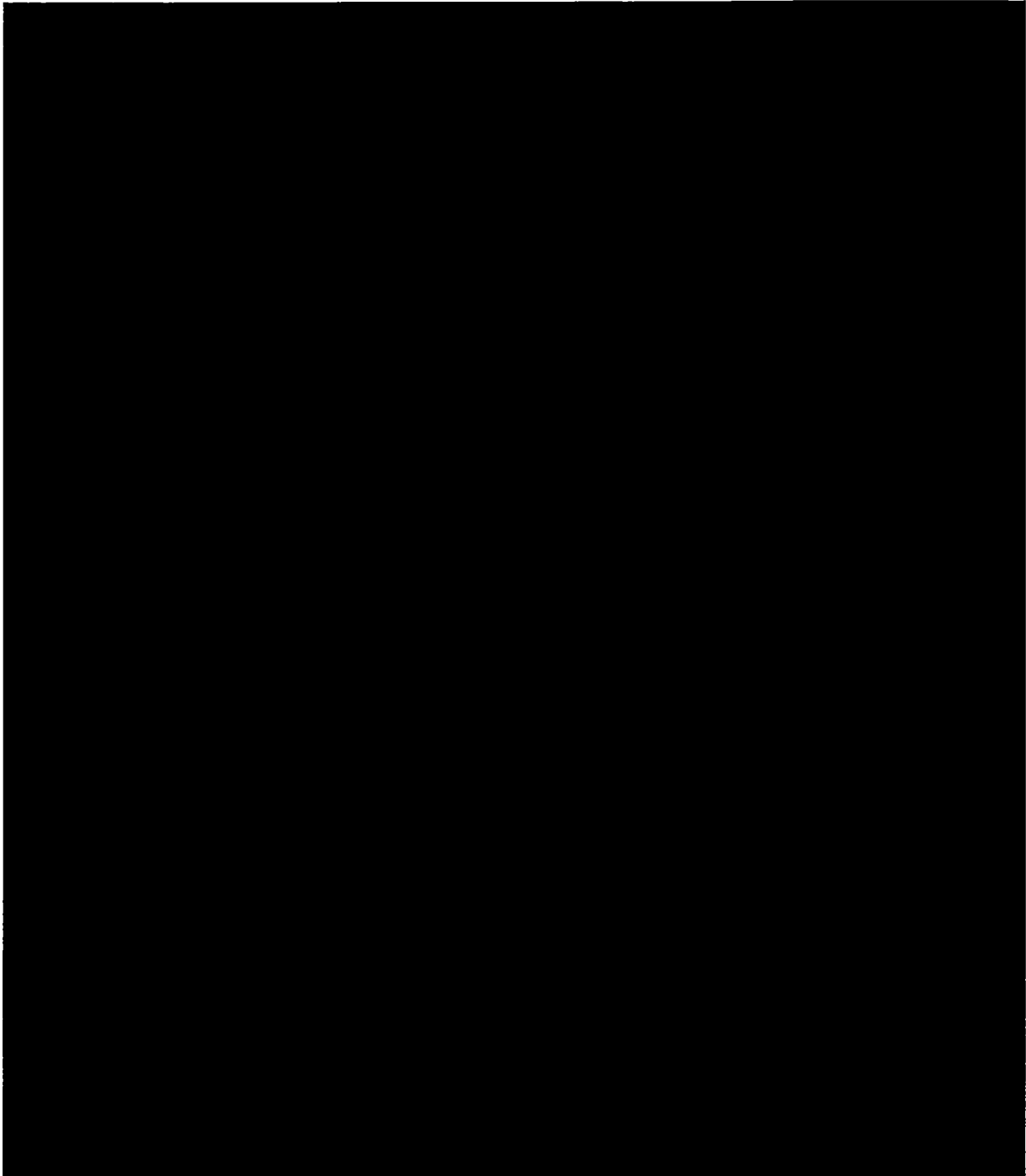
Two-dimensional axisymmetric FLUENT models are used for the steady state thermal analysis for the Water Phase for the MTC and PMTC. A comparison of the modeling approaches is provided in Table 4.2-1. The maximum temperatures of the fuel/basket and canister shell surface are also listed in the table.

A comparison of the modeling approaches used for Vacuum Drying Phase for the MTC and PMTC is presented in the response to RAI 4.1 (Tables 4.1-1 and 4.1-2). The maximum temperatures of the fuel and basket at the end of vacuum are also provided.

Two-dimensional axisymmetric FLUENT models are used for the transient thermal analysis for the Helium Backfill Phase for the MTC and PMTC. A comparison of the modeling approaches is provided in Table 4.2-2. The maximum temperatures of the fuel/basket at beginning and the end of the cooling, as well as the temperature drop during the 24-hour cooling, are also listed in this table.

Two-dimensional axisymmetric FLUENT models are used for the thermal analysis for the Transfer Phase. Transient analysis is used for the MTC and steady state analysis is used for the PMTC. A comparison of the modeling approaches is provided in Table 4.2-3. The maximum temperatures of the fuel/basket at the end of the transfer are also listed in this Table.

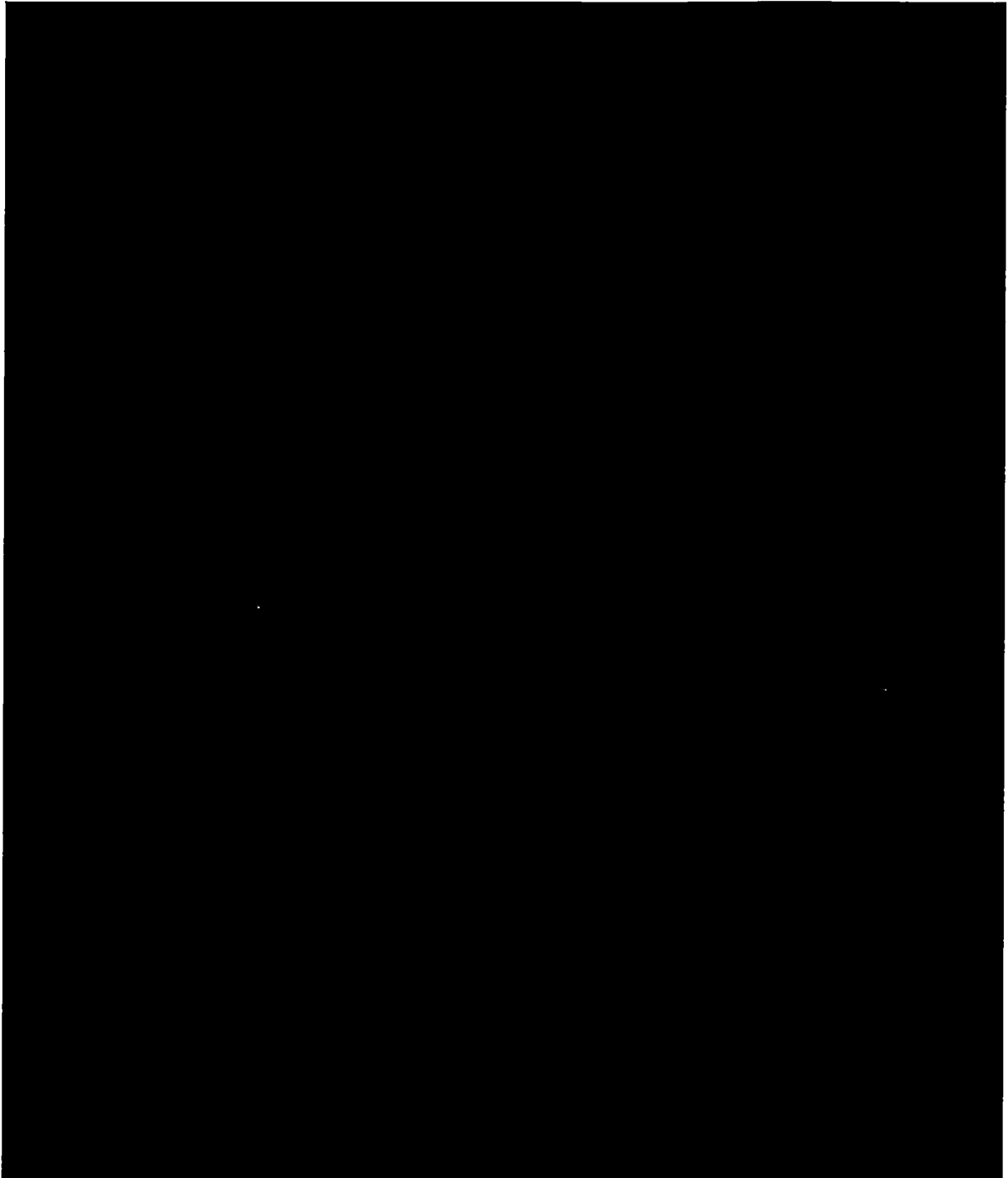
Table 4.2-1 Model Comparison for Water Phase (Steady State Analysis)



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Table 4.2-2 Model Comparison for Helium Backfill Phase (24-hr Cooling, Transient Analysis)



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Table 4.2-3 Model Comparison for Transfer Phase (Air in Annulus, Transient and Steady State Analysis)



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THERMAL EVALUATION

- 4.3 Justify the characterization of the 30 kW heat load being a bounding case during the helium cooling phase.

The NRC staff is unclear what criteria that the applicant is using to define the 30 kW heat load as the bounding case for the helium cooling phase. For example, is it a bounding case based on maximum fuel temperature after 24 hours or is it a bounding case because of the time duration for subsequent activities.

This information is necessary to determine compliance with 10 CFR 72.122 h (1).

NAC International Response to Thermal Evaluation RAI 4.3:

FSAR Section 4.10.2.3 provides the thermal analysis for the 24-hours cooling period with the TSC backfilled with helium. The 30 kW case is the bounding (limiting) case because it corresponds to the smallest fuel temperature reduction for the 24-hour cooling period as compared with heat load cases less than 30 kW. Note that the temperature reduction of 219°F from the analysis for 30 kW case is conservatively applied to 25 kW case (FSAR Section 4.10.2.2). FSAR Sections 4.10.2.2 and 4.10.2.3 have been updated to provide clarification regarding the analysis results of the 24-hour cooling period.

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THERMAL EVALUATION

- 4.4 Verify the modeling approach used for evaluation of the transfer condition (moving the Transportable Storage Canister into the Concrete Cask) presented in SAR section 4.10.2.4.

SAR Section 4.10.2.4 describes the numerical model as a 'three dimensional ANSYS model described in SAR Section 4.10.1.1', however, SAR Section 4.10.1.1 is a discussion on a 2D axisymmetric FLUENT model used to perform steady state analysis for the transfer condition.

This information is necessary to determine compliance with 10 CFR 72.122 h (1).

NAC International Response to Thermal Evaluation RAI 4.4:

FSAR Section 4.10.2.4 has been revised to correct this typographical error. The two-dimensional axisymmetric FLUENT model is used to perform steady state analysis for the transfer condition.

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GENERAL OBSERVATIONS

- O.1 Provide table numbers for all unlabeled tables in section 4.10.

NAC International Response to the General Observation O.1:

NAC has updated the section to show table numbers and has updated the list of tables for the chapter.

- O.2 Verify values reported in unlabeled table on pp. 4.10.2-2

NAC International Response to the General Observation O.2:

The temperatures reported in the table on pp. 4.10.2-2 are correct. The T_{\max} of Fuel at the End of the Helium Backfill is determined by subtracting the fuel temperature reduction due to 24-hour cooling (219°F) from the maximum fuel temperature at the end of vacuum (663-219=444°F for 30 kW case, 686-219=467°F for 25 kW case). FSAR Sections 4.10.2.2 and 4.10.2.3 have been updated to provide clarification for the temperature determination at the end of the 24-hour cooling period.

Enclosure 2

Supporting Calculations:

71160-3007, Rev. 10

71160-3020, Rev. 17

71160-3150, Rev 0

71160-3155, Rev. 1

for

MAGNASTOR® FSAR, Amendment 7

(Docket No. 72-1031)

April 2016

CALCULATIONS WITHHELD IN THEIR ENTIRETY PER 10 CFR 2.390

Enclosure 3

Proposed Changes

for

**MAGNASTOR® Technical Specifications, Amendment 7
RAI Responses
(Docket No 72-1031)**

NAC International

April 2016

APPENDIX A

**TECHNICAL SPECIFICATIONS AND DESIGN FEATURES
FOR THE MAGNASTOR SYSTEM**

AMENDMENT 6

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PROPOSED

1.0 USE AND APPLICATION

1.1 Definitions

NOTE

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

<u>Term</u>	<u>Definition</u>
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ASSEMBLY AVERAGE FUEL ENRICHMENT	Value calculated by averaging the ^{235}U wt % enrichment over the entire fuel region (UO_2) of an individual fuel assembly, including axial blankets, if present.
BREACHED SPENT FUEL ROD	Spent fuel with cladding defects that permit the release of gas from the interior of the fuel rod. A fuel rod breach may be a minor defect (i.e., hairline crack or pinhole), allowing the rod to be classified as undamaged, or be a gross breach requiring a damaged fuel classification.
BURNUP	<p>a) Assembly Average Burnup:</p> <p>Value calculated by averaging the burnup over the entire fuel region (UO_2) of an individual fuel assembly, including axial blankets, if present. Assembly average burnup represents the reactor record, nominal, value. The assembly average burnup is equal to the reactor record, nominal, energy production (MWd) over the life of the fuel assembly divided by the fuel assembly pre-irradiation heavy metal (U) mass in metric tons.</p> <p>b) Nonfuel Hardware Burnup:</p> <p>Equivalent accumulated irradiation exposure for activation evaluation.</p>
COMPOSITE CLOSURE LID	A closure lid assembly, consisting of a stainless steel TRANSPORTABLE STORAGE CANISTER closure lid and a separate shield plate bolted together, that provides closure of a TRANSPORTABLE STORAGE CANISTER.
CONCRETE CASK	The CONCRETE CASK is the vertical storage module that receives, holds and protects the sealed TSC for storage at the ISFSI. The CONCRETE CASK passively provides the radiation shielding, structural protection, and heat dissipation capabilities for the safe storage of spent fuel in a TSC.

(continued)

DAMAGED FUEL

SPENT NUCLEAR FUEL (SNF) assembly that cannot fulfill its fuel-specific or system-related function. SNF is classified as damaged under the following conditions.

1. There is visible deformation of the rods in the SNF assembly.

Note: This is not referring to the uniform bowing that occurs in the reactor; this refers to bowing that significantly opens up the lattice spacing.

2. Individual fuel rods are missing from the SNF assembly and the missing rods are not replaced by a solid stainless steel or zirconium dummy rod that displaces a volume equal to, or greater than, the original fuel rod.

3. The SNF assembly has missing, displaced or damaged structural components such that:

- 3.1. Radiological and/or criticality safety is adversely affected (e.g., significantly changed rod pitch); or

- 3.2. The SNF assembly cannot be handled by normal means (i.e., crane and grapple); or

- 3.3. The SNF assembly contains fuel rods with damaged or missing grids, grid straps, and/or grid springs producing an unsupported length greater than 60 inches.

Note: SNF assemblies with the following structural defects meet MAGNASTOR system-related functional requirements and are, therefore, classified as undamaged: Assemblies with missing or damaged grids, grid straps and/or grid springs resulting in an unsupported fuel rod length not to exceed 60 inches.

4. Any SNF assembly that contains fuel rods for which reactor operating records (or other records or tests) cannot support the conclusion that they do not contain gross breaches.

Note: BREACHED SPENT FUEL RODS with minor cladding defects (i.e., pinhole leaks or hairline cracks that will not permit significant release of particulate matter from the spent fuel rod) meet MAGNASTOR system-related functional requirements and are, therefore, classified as undamaged.

5. FUEL DEBRIS such as ruptured fuel rods, severed rods, loose fuel pellets, containers or structures that are supporting loose PWR fuel assembly parts.

(continued)

DAMAGED FUEL CAN (DFC)	A specially designed stainless steel screened can sized to hold UNDAMAGED PWR FUEL, DAMAGED PWR FUEL, and/or FUEL DEBRIS. The screens preclude the release of gross particulate from the DFC into the canister cavity. DFCs are only authorized for loading in specified locations of a DF Basket Assembly.
FUEL DEBRIS	FUEL DEBRIS is ruptured fuel rods, severed rods, loose fuel pellets, containers or structures that are supporting loose PWR fuel assembly parts.
GROSSLY BREACHED SPENT FUEL ROD	A breach in the spent fuel cladding that is larger than a pinhole or hairline crack. A gross cladding breach may be established by visual examination with the capability to determine if the fuel pellet can be seen through the cladding, or through a review of reactor operating records indicating the presence of heavy metal isotopes.
INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)	The facility within the perimeter fence licensed for storage of spent fuel within MAGNASTOR SYSTEMS (see also 10 CFR 72.3).
INITIAL PEAK PLANAR-AVERAGE ENRICHMENT	The INITIAL PEAK PLANAR-AVERAGE ENRICHMENT is the maximum planar-average enrichment at any height along the axis of the fuel assembly. The INITIAL PEAK PLANAR-AVERAGE ENRICHMENT may be higher than the bundle (assembly) average enrichment.
LOADING OPERATIONS	LOADING OPERATIONS include all licensed activities while a MAGNASTOR SYSTEM is being loaded with fuel assemblies. LOADING OPERATIONS begin when the first assembly is placed in the TSC and end when the TSC is lowered into a CONCRETE CASK.
MAGNASTOR SYSTEM (MAGNASTOR)	The MAGNASTOR (Modular Advanced Generation Nuclear All-purpose STORAGE) SYSTEM includes the components certified for the storage of spent fuel assemblies at an ISFSI. The MAGNASTOR SYSTEM consists of a CONCRETE CASK and a TSC. A MAGNASTOR TRANSFER CASK (MTC) or Passive MAGNASTOR TRANSFER CASK (PMTc) is provided and utilized to load and place a TSC in a CONCRETE CASK or to remove a TSC from a CONCRETE CASK.

(continued)

NONFUEL HARDWARE

NONFUEL HARDWARE is defined as reactor control components (RCCs), burnable poison absorber assemblies (BPAAs), guide tube plug devices (GTPDs), neutron sources/neutron source assemblies (NSAs), hafnium absorber assemblies (HFRAs), instrument tube tie components, guide tube anchors or other similar devices, in-core instrument thimbles, steel rod inserts (used to displace water from lower section of guide tube), and components of these devices such as individual rods. All nonfuel hardware, with the exception of instrument tube tie components, guide tube anchors or other similar devices, and steel rod inserts, may be activated during in-core operations.

RCCs are commonly referred to as rod cluster control assemblies (RCCAs), control rod assemblies (CRAs), or control element assemblies (CEAs). RCCs are primarily designed to provide reactor shutdown reactivity control, are inserted into the guide tubes of the assembly, and are typically employed for a significant number of operating cycles. Burnup poison absorber assemblies (BPAAs) are commonly referred to as burnup poison rod assemblies (BPRAs), but may have vendor specific nomenclature such as BPRA, Pyrex BPRA or WABA (wet annular burnable absorber). BPAAs are used to control reactivity of fresh fuel or high reactivity fuels and are commonly used for a single cycle but may be used for multiple cycles. GTPDs are designed to block guide tube openings when no BPAA is employed and are commonly referred to as thimble plugs (TPs), thimble plug devices (TPDs), flow mixers (FMs), water displacement guide tube plugs, or vibration suppressor inserts. GTPDs may be employed for multiple cycles. NSAs are primary and secondary neutron sources used during reactor startup and may be used for multiple cycles.

Integral fuel burnable absorbers, either integral to a fuel rod or as a substitution for a fuel rod, and fuel replacement rods (fueled, stainless steel, or zirconium alloy) are considered components of spent nuclear fuel (SNF) assemblies and are not considered to be nonfuel hardware.

OPERABLE

A system, component, or device is OPERABLE when it is capable of performing its specified safety functions.

(continued)

SPENT NUCLEAR FUEL (SNF)	Irradiated fuel assemblies consisting of end-fittings, grids, fuel rods and integral hardware. Integral hardware for PWR assemblies primarily consists of guide/instrument tubes, but may contain integral fuel burnable absorbers, either integral to a fuel rod or as a fuel rod substitution, and fuel replacement rods (another fuel rod, stainless steel rod, or zirconium alloy rod). For BWR fuel, integral hardware may consist of water rods in various shapes, inert rods, fuel rod cluster dividers, and/or fuel assembly channels (optional). PWR SNF may contain NONFUEL HARDWARE.
STORAGE OPERATIONS	STORAGE OPERATIONS include all licensed activities that are performed at the ISFSI following placement of a CONCRETE CASK containing a loaded TSC at its designated storage location on the storage pad.
TRANSFER CASK	TRANSFER CASK is a shielded lifting device designed to hold the TSC during LOADING OPERATIONS, TRANSFER OPERATIONS, and UNLOADING OPERATIONS. Either a MAGNASTOR TRANSFER CASK (MTC) or Passive MAGNASTOR TRANSFER CASK (PMTC) may be used.
TRANSFER OPERATIONS	TRANSFER OPERATIONS include all licensed activities involved in using a MAGNASTOR TRANSFER CASK (MTC) or Passive MAGNASTOR TRANSFER CASK (PMTC) to move a loaded and sealed TSC from a CONCRETE CASK to another CONCRETE CASK.
TRANSPORT OPERATIONS	TRANSPORT OPERATIONS include all licensed activities performed on a loaded MAGNASTOR CONCRETE CASK when it is being moved to and from its designated location on the ISFSI. TRANSPORT OPERATIONS begin when the loaded CONCRETE CASK is placed on or lifted by a transporter and end when the CONCRETE CASK is set down in its storage position on the ISFSI pad.
TRANSPORTABLE STORAGE CANISTER (TSC)	The TRANSPORTABLE STORAGE CANISTER (TSC) is the welded container consisting of a basket in a weldment composed of a cylindrical shell welded to a baseplate. The TSC includes a closure lid, a shield plate (optional), a closure ring, and redundant port covers at the vent and the drain ports. The closure lid is welded to the TSC shell and the closure ring is welded to the closure lid and the TSC shell. The port covers are welded to the closure lid. The TSC provides the confinement boundary for the radioactive material contained in the TSC cavity.

(continued)

TSC TRANSFER FACILITY	The TSC TRANSFER FACILITY includes: 1) a transfer location for the lifting and transfer of a TRANSFER CASK and placement of a TSC into or out of a CONCRETE CASK; and 2) either a stationary lift device or a mobile lifting device used to lift the TRANSFER CASK and TSC, but not licensed as part of the 10 CFR 50 facility.
UNDAMAGED FUEL	<p>SNF that can meet all fuel specific and system-related functions. UNDAMAGED FUEL is SNF that is not DAMAGED FUEL, as defined herein, and does not contain assembly structural defects that adversely affect radiological and/or criticality safety. As such, UNDAMAGED FUEL may contain:</p> <ul style="list-style-type: none">a) BREACHED SPENT FUEL RODS (i.e, rods with minor defects up to hairline cracks or pinholes) but cannot contain grossly breached fuel rods,b) Grid, grid strap, and/or grid spring damage provided that the unsupported length of the fuel rod does not exceed 60 inches.
UNLOADING OPERATIONS	UNLOADING OPERATIONS include the activities required to remove the fuel assemblies from a sealed TSC. UNLOADING OPERATIONS begin with the movement of the TSC from a CONCRETE CASK into a TRANSFER CASK in an unloading facility and end when the last fuel assembly has been removed from the TSC.

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE The purpose of this section is to explain the meaning of logical connectors.

Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in Technical Specifications are "AND" and "OR". The physical arrangement of these connectors constitutes logical conventions with specific meanings.

BACKGROUND Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentations of the logical connectors.

When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.

EXAMPLES The following examples illustrate the use of logical connectors.

EXAMPLE 1.2-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met	A.1 Verify . . .	
	<u>AND</u>	
	A.2 Restore . . .	

In this example, the logical connector "AND" is used to indicate that when in Condition A, both Required Actions A.1 and A.2 must be completed.

(continued)

EXAMPLES
(continued)

EXAMPLE 1.2-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met	A.1 Stop . . . <u>OR</u> A.2.1 Verify . . . <u>AND</u> A.2.2 A.2.2.1 Reduce <u>OR</u> A.2.2.2 Perform . . . <u>OR</u> A.3 Remove	

This example represents a more complicated use of logical connectors. Required Actions A.1, A.2, and A.3 are alternative choices, only one of which must be performed as indicated by the use of the logical connector "OR" and the left justified placement. Any one of these three Actions may be chosen. If A.2 is chosen, then both A.2.1 and A.2.2 must be performed as indicated by the logical connector "AND". Required Action A.2.2 is met by performing A.2.2.1 or A.2.2.2. The indented position of the logical connector "OR" indicates that A.2.2.1 and A.2.2.2 are alternative choices, only one of which must be performed.

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify the lowest functional capability or performance levels of equipment required for safe operation of the facility. The ACTIONS associated with an LCO state conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
DESCRIPTION	<p>The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, provided that MAGNASTOR is in a specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or MAGNASTOR is not within the LCO Applicability.</p> <p>Once a Condition has been entered, subsequent subsystems, components, or variables expressed in the Condition, discovered to be not within limits, will <u>not</u> result in separate entry into the Condition unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition.</p>

(continued)

EXAMPLES

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met	B.1 Perform Action B.1	12 hours
	<u>AND</u>	
	B.2 Perform Action B.2	36 hours

Condition B has two Required Actions. Each Required Action has its own Completion Time. Each Completion Time is referenced to the time that Condition B is entered.

The Required Actions of Condition B are to complete action B.1 within 12 hours AND complete action B.2 within 36 hours. A total of 12 hours is allowed for completing action B.1 and a total of 36 hours (not 48 hours) is allowed for completing action B.2 from the time that Condition B was entered. If action B.1 is completed within six hours, the time allowed for completing action B.2 is the next 30 hours because the total time allowed for completing action B.2 is 36 hours.

(continued)

EXAMPLES
(continued)

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One system not within limit.	A.1 Restore system to within limit.	7 days
B. Required Action and associated Completion Time not met.	B.1 Complete action B.1	12 hours
	<u>AND</u> B.2 Complete action B.2	36 hours

When a system is determined not to meet the LCO, Condition A is entered. If the system is not restored within 7 days, Condition B is also entered, and the Completion Time clocks for Required Actions B.1 and B.2 start. If the system is restored after Condition B is entered, Conditions A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

(continued)

EXAMPLES
(continued)

EXAMPLE 1.3-3

ACTIONS

NOTE

Separate Condition entry is allowed for each component.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met	A.1 Restore compliance with LCO.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Complete action B.1 <u>AND</u>	6 hours
	B.2 Complete action B.2	12 hours

The Note above the ACTIONS table is a method of modifying how the Completion Time is tracked. If this method of modifying how the Completion Time is tracked was applicable only to a specific Condition, the Note would appear in that Condition rather than at the top of the ACTIONS Table.

The Note allows Condition A to be entered separately for each component, and Completion Times to be tracked on a per component basis. When a component is determined to not meet the LCO, Condition A is entered and its Completion Time starts. If subsequent components are determined to not meet the LCO, Condition A is entered for each component and separate Completion Times are tracked for each component.

IMMEDIATE
COMPLETION TIME

When "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE	The purpose of this section is to define the proper use and application of Frequency requirements.
---------	--

DESCRIPTION	Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated Limiting Condition for Operation (LCO). An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.
-------------	--

Each "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of requirements of the Frequency column of each SR.

Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e. the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.

The use of "met" or "performed" in these instances conveys specific meanings. Surveillance is "met" only after the acceptance criteria are satisfied. Known failure of the requirements of Surveillance, even without Surveillance specifically being "performed", constitutes a Surveillance not "met".

(continued)

EXAMPLES

The following examples illustrate the various ways that Frequencies are specified.

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify pressure within limit	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the interval specified in the Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment or variables are outside specified limits, or the facility is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the facility is in a condition specified in the Applicability of the LCO, the LCO is not met in accordance with SR 3.0.1.

If the interval as specified by SR 3.0.2 is exceeded while the facility is not in a condition specified in the Applicability of the LCO for which performance of the SR is required, the Surveillance must be performed within the Frequency requirements of SR 3.0.2, prior to entry into the specified condition. Failure to do so would result in a violation of SR 3.0.4.

(continued)

EXAMPLES

(continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify flow is within limit	Once within 12 hours prior to starting activity <u>AND</u> 24 hours thereafter

Example 1.4-2 has two Frequencies. The first is a one-time performance Frequency, and the second is of the type shown in Example 1.4-1. The logical connector "AND" indicates that both Frequency requirements must be met. Each time the example activity is to be performed, the Surveillance must be performed within 12 hours prior to starting the activity.

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the 25% extension allowed by SR 3.0.2.

"Thereafter" indicates future performances must be established per SR 3.0.2, but only after a specified condition is first met (i.e., the "once" performance in this example). If the specified activity is canceled or not performed, the measurement of both intervals stops. New intervals start upon preparing to restart the specified activity.

PROPOSED

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1	LCOs shall be met during specified conditions in the Applicability, except as provided in LCO 3.0.2.
LCO 3.0.2	<p>Upon failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5.</p> <p>If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated.</p>
LCO 3.0.3	Not applicable to MAGNASTOR.
LCO 3.0.4	<p>When an LCO is not met, entry into a specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the specified condition in the Applicability for an unlimited period of time. This Specification shall not prevent changes in specified conditions in the Applicability that are required to comply with ACTIONS or that are related to the unloading of MAGNASTOR.</p> <p>Exceptions to this Condition are stated in the individual Specifications. These exceptions allow entry into specified conditions in the Applicability where the associated ACTIONS to be entered allow operation in the specified conditions in the Applicability only for a limited period of time.</p>
LCO 3.0.5	This exception to LCO 3.0.2 is not applicable for the MAGNASTOR SYSTEM to return to service under administrative control to perform the testing.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1	<p>SRs shall be met during the specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be a failure to meet the LCO. Failure to perform Surveillance within the specified Frequency shall be a failure to meet the LCO, except as provided in SR 3.0.3. Surveillances do not have to be performed on equipment or variables outside specified limits.</p>
SR 3.0.2	<p>The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.</p> <p>For Frequencies specified as "once," the above interval extension does not apply. If a Completion Time requires periodic performance on a "once per..." basis, the above Frequency extension applies to each performance after the initial performance.</p> <p>Exceptions to this Specification are stated in the individual Specifications.</p>
SR 3.0.3	<p>If it is discovered that Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed from the time of discovery up to 24 hours or up to the limit of the specified Frequency, whichever is less. This delay period is permitted to allow performance of the Surveillance.</p> <p>If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered. When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.</p>
SR 3.0.4	<p>Entry into a specified Condition in the Applicability of an LCO shall not be made, unless the LCO's Surveillances have been met within their specified Frequency. This provision shall not prevent entry into specified conditions in the Applicability that are required to comply with Actions or that are related to the unloading of MAGNASTOR.</p>

3.1 MAGNASTOR SYSTEM Integrity

3.1.1 Transportable Storage Canister (TSC)

LCO 3.1.1

The TSC shall be dry and helium filled. The following vacuum drying times, helium backfill and TSC transfer times shall be met as appropriate to the fuel content type and heat load:

1. The time durations covering the beginning of canister draining through completion of vacuum drying and helium backfill, minimum helium backfill times, and TSC transfer times shall meet the following:

A. PWR TSC Transfer Using MTC with Reduced Helium Backfill Time

Heat Load (kW)	Maximum Vacuum Time Limit (hours)	Minimum Helium Backfill Time (hours)	Maximum TSC Transfer Time (hours)
≤ 20	No limit	0	600
≤ 25	50	0	70.5
≤ 30	19	7	8
≤ 35.5	15	7	8

B. PWR Using MTC with Maximum TSC Transfer

Heat Load (kW)	Maximum Vacuum Time Limit (hours)	Minimum Helium Backfill Time (hours)	Maximum TSC Transfer Time (hours)
≤ 25	No limit	24	48
≤ 30	32	24	22
≤ 35.5	24	24	22

C. BWR Using MTC with 8 Hours TSC Transfer

Heat Load (kW)	Maximum Vacuum Time Limit (hours)	Minimum Helium Backfill Time (hours)	Maximum TSC Transfer Time (hours)
≤ 25	No limit	0	8
≤ 29	34	6	8
≤ 30	31	6	8
≤ 33	26	6	8

(continued)

D. BWR Using MTC with Maximum TSC Transfer

Heat Load (kW)	Maximum Vacuum Time Limit (hours)	Minimum Helium Backfill Time (hours)	Maximum TSC Transfer Time (hours)
≤ 25	No limit	24	65
≤ 29	No limit	24	32
≤ 30	44	24	32
≤ 33	33	24	32

E. PWR TSC Transfer Using PMTC¹

Heat Load (kW)	Maximum Vacuum Time Limit (hours)	Minimum Helium Backfill Time (hours)	Maximum TSC Transfer Time (hours)
≤ 20	No limit	0	600
≤ 25	54	0	600
≤ 30	32	0	600

2. The time duration from the end of TSC annulus cooling, either by 24 hours in the pool or by the annulus circulating water system, through completion of vacuum drying and helium backfill using a MTC shall not exceed the following:

	Heat Load	Time Limit (hours)
PWR	35.5	11
BWR	33	16

Note: The helium backfill times and TSC transfer times provided in Tables 1.B and 1.D shall be used for operations following the second or subsequent vacuum drying cycles using the MTC.

(continued)

¹ CE 16 × 16 fuel only, with a maximum storage cell location heat load of 811 watts.

3. The time duration from the end of TSC annulus cooling, either by 24 hours in the pool or by the annulus circulating water system, through completion of vacuum drying and helium backfill using a PMTC shall not exceed the following:

	Heat Load	Time Limit (hours)
PWR	≤ 25	34
PWR	≤ 30	17

Note: The helium backfill times and TSC transfer times provided in Table 1.E shall be used for operations following the second or subsequent vacuum drying cycles using the PMTC.

APPLICABILITY: Prior to TRANSPORT OPERATIONS

(continued)

ACTIONS

NOTE

Separate Condition entry is allowed for each TSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. TSC cavity vacuum drying pressure limit not met.	A.1 Perform an engineering evaluation to determine the quantity of moisture remaining in the TSC.	7 days
	<u>AND</u> A.2 Develop and initiate corrective actions necessary to return the TSC to an analyzed condition.	30 days
B. TSC helium backfill density limit not met.	B.1 Perform an engineering evaluation to determine the effect of helium density differential.	72 hours
	<u>AND</u> B.2 Develop and initiate corrective actions necessary to return the TSC to an analyzed condition.	14 days
C. Required Actions and associated Completion Times not met.	C.1 Remove all fuel assemblies from the TSC.	30 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.1.1	Verify TSC cavity vacuum drying pressure is less than or equal to 10 torr for greater than or equal to 10 minutes with the vacuum pump turned off and isolated.	Once, prior to TRANSPORT OPERATIONS.
SR 3.1.1.2	Following vacuum drying and evacuation to < 3 torr, backfill the cavity with high purity helium until a mass M_{helium} corresponding to the free volume of the TSC measured during draining (V_{TSC}), multiplied by the helium density (L_{helium}) required for the design basis heat load and specified in Table A3-1, is reached.	Once, prior to TRANSPORT OPERATIONS.

Table A3-1 Helium Mass per Unit Volume for MAGNASTOR TSCs

Fuel Type	Helium Density (g/liter)
PWR	0.694 – 0.802
BWR	0.704 – 0.814

PROPOSED

3.1 MAGNASTOR SYSTEM Integrity

3.1.2 CONCRETE CASK Heat Removal System

LCO 3.1.2 The CONCRETE CASK Heat Removal System shall be OPERABLE.

APPLICABILITY: During STORAGE OPERATIONS

ACTIONS

NOTE

Separate Condition entry is allowed for each MAGNASTOR SYSTEM.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CONCRETE CASK Heat Removal System inoperable.	A.1 Ensure adequate heat removal to prevent exceeding short-term temperature limits.	Immediately
	<p><u>AND</u></p> <p>A.2 Restore CONCRETE CASK Heat Removal System to OPERABLE status.</p>	30 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	Verify that the difference between the average CONCRETE CASK air outlet temperature and ISFSI ambient temperature indicates that the CONCRETE CASK Heat Removal System is operable in accordance with the FSAR thermal evaluation.	24 hours
	<p><u>OR</u></p> <p>Visually verify all CONCRETE CASK air inlet and outlet screens are free of blockage.</p>	24 hours

3.2 MAGNASTOR SYSTEM Criticality Control for PWR Fuel

3.2.1 Dissolved Boron Concentration

LCO 3.2.1 The dissolved boron concentration in the water in the TSC cavity shall be greater than, or equal to, the concentration specified in Appendix B, Table B2-4. A minimum concentration of 1,500 ppm is required for all PWR fuel types. Higher concentrations are required, depending on the fuel type and enrichment.

APPLICABILITY: During LOADING OPERATIONS and UNLOADING OPERATIONS with water and at least one fuel assembly in the TSC.

ACTIONS

NOTE

Separate Condition entry is allowed for each TSC.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Dissolved boron concentration not met.	A.1 Suspend LOADING OPERATIONS or UNLOADING OPERATIONS	Immediately
	<u>AND</u>	
	A.2 Suspend positive reactivity additions.	Immediately
	<u>AND</u>	
	A.3 Initiate action to restore boron concentration to within limits.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	Verify the dissolved boron concentration is met using two independent measurements.	Once within 4 hours prior to commencing LOADING OPERATIONS or UNLOADING OPERATIONS. <u>AND</u> Every 24 hours thereafter while the TSC is in the spent fuel pool or while water is in the TSC.

3.3 MAGNASTOR SYSTEM Radiation Protection

3.3.1 CONCRETE CASK Maximum Surface Dose Rate

LCO 3.3.1 The maximum surface dose rates for the CONCRETE CASK, Reference Figure A3-1, shall not exceed the following limits:

- a. PWR and BWR – 120 mrem/hour gamma and 5 mrem/hour neutron on the vertical concrete surfaces; and
- b. PWR and BWR – 450 mrem/hour (neutron + gamma) on the top.

APPLICABILITY: Prior to start of STORAGE OPERATIONS

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each MAGNASTOR® SYSTEM.

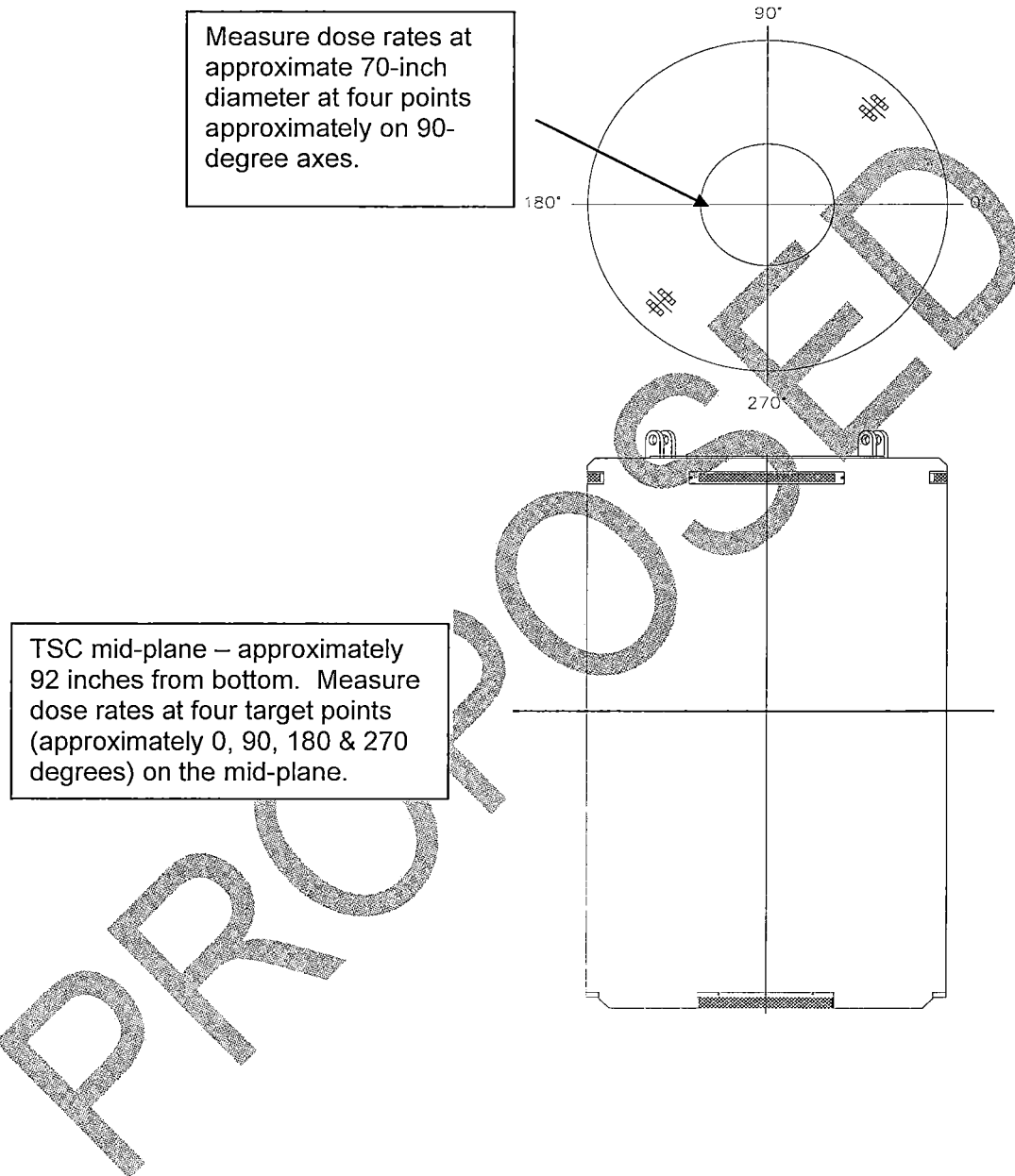
CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CONCRETE CASK maximum surface dose rate limits not met	A.1 Administratively verify correct fuel loading	24 hours
	AND A.2 Perform analysis to verify compliance with the ISFSI radiation protection requirements of 10 CFR 20 and 10 CFR 72	7 days
B. Required Action and associated Completion Time not met	B.1 Perform (and document) an engineering assessment and take appropriate corrective action to ensure the dose limits of 10 CFR 20 and 10 CFR 72 are not exceeded	60 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Verify maximum surface dose rates of CONCRETE CASK loaded with a TSC containing fuel assemblies are within limits. Dose rates shall be measured at the locations shown in Figure A3-1.	Prior to start of STORAGE OPERATIONS of each loaded CONCRETE CASK before or after placement on the ISFSI pad.

Figure A3-1 CONCRETE CASK Surface Dose Rate Measurement



3.3 MAGNASTOR SYSTEM Radiation Protection

3.3.2 TSC Surface Contamination

LCO 3.3.2 Removable contamination on the exterior surfaces of the TSC shall not exceed:

- a. 10,000 dpm/100 cm² from beta and gamma sources; and
- b. 100 dpm/100 cm² from alpha sources.

APPLICABILITY: During LOADING OPERATIONS

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each MAGNASTOR SYSTEM.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. TSC removable surface contamination limits not met	A.1 Restore TSC removable surface contamination to within limits	Prior to TRANSPORT OPERATIONS

(continued)

SURVEILLANCE REQUIREMENTS		
SURVEILLANCE		FREQUENCY
SR 3.3.2	Verify by either direct or indirect methods that the removable contamination on the exterior surfaces of the TSC is within limits	Once, prior to TRANSPORT OPERATIONS

4.0 DESIGN FEATURES

4.1 Design Features Significant to Safety

4.1.1 Criticality Control

a) Minimum ^{10}B loading in the neutron absorber material:

Neutron Absorber Type	Required Minimum Effective Areal Density (^{10}B g/cm 2)		% Credit Used in Criticality Analyses	Required Minimum Actual Areal Density (^{10}B g/cm 2)	
	PWR Fuel	BWR Fuel		PWR Fuel	BWR Fuel
Borated Aluminum Alloy	0.036	0.027	90	0.04	0.03
	0.030	0.0225		0.0334	0.025
	0.027	0.020		0.03	0.0223
Borated MMC	0.036	0.027	90	0.04	0.03
	0.030	0.0225		0.0334	0.025
	0.027	0.020		0.03	0.0223
Boral	0.036	0.027	75	0.048	0.036
	0.030	0.0225		0.04	0.030
	0.027	0.020		0.036	0.0267

Enrichment/soluble boron limits for PWR systems and enrichment limits for BWR systems are incorporated in Appendix B Section 2.0.

b) Acceptance and qualification testing of borated aluminum alloy and borated MMC neutron absorber material shall be in accordance with Sections 10.1.6.4.5, 10.1.6.4.6 and 10.1.6.4.7. Acceptance testing of Boral shall be in accordance with Section 10.1.6.4.8. These sections of the FSAR are hereby incorporated into the MAGNASTOR CoC.

c) Soluble boron concentration in the PWR fuel pool and water in the TSC shall be in accordance with LCO 3.2.1, with a minimum water temperature 5-10°F higher than the minimum needed to ensure solubility.

d) Minimum fuel tube outer diagonal dimension

PWR basket — 13.08 inches

BWR basket — 8.72 inches

Note: Not applicable to DFC locations of the DF Basket Assembly.

4.1.2 Fuel Cladding Integrity

The licensee shall ensure that fuel oxidation and the resultant consequences are precluded during canister loading and unloading operations.

4.1.3 Transfer Cask Shielding

The nominal configuration transfer cask radial bulk shielding (i.e., shielding integral to the transfer cask; excludes supplemental shielding) must provide a

(continued)

minimum radiation shield equivalent to 2 inches of carbon steel or stainless steel and 3.2 inches of lead gamma shielding and 2.25 inches of NS-4-FR (with 0.6 wt % B₄C and 6.0 wt % H) neutron shielding. Material and dimensions of the individual shield layers may vary provided maximum calculated radial dose rates of 1100 mrem/hr (PWR system) and 1600 mrem/hr (BWR system) are maintained on the vertical surface (not including doors or vent shielding).

4.1.4 TSC Confinement Integrity

The TSC shell, bottom plate, all confinement welds, and the COMPOSITE CLOSURE LID shall be fabrication helium leak-tested in accordance with ANSI N14.5 to leaktight criterion.

The closure lid shall be helium leak-tested during fabrication (in accordance with ANSI N14.5 to leaktight criterion) if it is constructed with a lid thickness less than 9 inches (nominal).

4.2 Codes and Standards

The American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), 2001 Edition with Addenda through 2003, Section III, Subsection NB, is the governing Code for the design, material procurement, fabrication, and testing of the TSC.

The ASME Code, 2001 Edition with Addenda through 2003, Section III, Subsection NG, is the governing Code for the design, material procurement, fabrication and testing of the spent fuel baskets.

The American Concrete Institute Specifications ACI-349 and ACI-318 govern the CONCRETE CASK design and construction, respectively.

The American National Standards Institute ANSI N14.6 (1993) and NUREG-0612 govern the TRANSFER CASK design, operation, fabrication, testing, inspection, and maintenance.

4.2.1 Alternatives to Codes, Standards, and Criteria

Table 2.1-2 of the FSAR lists approved alternatives to the ASME Code for the design, procurement, fabrication, inspection and testing of MAGNASTOR SYSTEM TSCs and spent fuel baskets.

4.2.2 Construction/Fabrication Alternatives to Codes, Standards, and Criteria

Proposed alternatives to ASME Code, Section III, 2001 Edition with Addenda through 2003, other than the alternatives listed in Table 2.1-2 of the FSAR, may be used when authorized by the Director of the Office of Nuclear Material Safety and Safeguards or designee. The request for such alternatives should demonstrate that:

(continued)

1. The proposed alternatives would provide an acceptable level of quality and safety, or
2. Compliance with the specified requirements of ASME Code, Section III, Subsections NB and NG, 2001 Edition with Addenda through 2003, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Requests for alternatives shall be submitted in accordance with 10 CFR 72.4.

4.3 Site-Specific Parameters and Analyses

This section presents site-specific parameters and analytical bases that must be verified by the MAGNASTOR SYSTEM user. The parameters and bases presented in Section 4.3.1 are those applied in the design bases analysis.

4.3.1 Design Basis Specific Parameters and Analyses

The design basis site-specific parameters and analyses that require verification by the MAGNASTOR SYSTEM user are:

- a. A temperature of 76°F is the maximum average yearly temperature. The three-day average ambient temperature shall be $\leq 106^{\circ}\text{F}$.
- b. The allowed temperature extremes, averaged over a three-day period, shall be $\geq -40^{\circ}\text{F}$ and $\leq 133^{\circ}\text{F}$.
- c. The analyzed flood condition of 15 fps water velocity and a depth of 50 ft of water (full submergence of the loaded cask) are not exceeded.
- d. The potential for fire and explosion shall be addressed, based on site-specific considerations. This includes the condition that the fuel tank(s) of the cask handling equipment used to move the loaded CONCRETE CASK onto or from the ISFSI site contains a total of no more than 50 gallons of fuel.
- e. In cases where engineered features (i.e., berms, shield walls) are used to ensure that requirements of 10 CFR 72.104(a) are met, such features are to be considered important to safety and must be evaluated to determine the applicable Quality Assurance Category on a site-specific basis.
- f. The TRANSFER CASK shall not be operated and used when surrounding air temperature is $< 0^{\circ}\text{F}$. This limit is NOT applicable to the stainless steel MTC or PMTC.
- g. The CONCRETE CASK shall not be lifted by the lifting lugs with surrounding air temperatures $< 0^{\circ}\text{F}$.
- h. Loaded CONCRETE CASK lifting height limit ≤ 24 inches.

(continued)

- i. The maximum design basis earthquake acceleration of 0.37g in the horizontal direction (without cask sliding) and 0.25g in the vertical direction at the ISFSI pad top surface do not result in cask tip-over.

For design basis earthquake accelerations up to and greater than 0.37g in the horizontal direction and 0.25g in the vertical direction at the ISFSI pad top surface, site-specific cask sliding is permitted with validation by the cask user that the cask does not slide off the pad and that the g-load resulting from the collision of two sliding casks remains bounded by the cask tip-over accident condition analysis presented in Chapter 3 of the FSAR.

An alternative to crediting site-specific cask sliding for design basis earthquake accelerations up to and greater than 0.37g in the horizontal direction and 0.25g in the vertical direction at the ISFSI pad top surface, the use of the MAGNASTOR system is permitted provided the ISFSI pad has bollards and the cask user validates that the cask does not overturn, g-loads resulting from the cask contacting the bollard is bounded by the cask tip-over accident condition presented in Chapter 3 of the FSAR, and the ISFSI pad and bollards are designed, fabricated and installed such that they are capable of handling the combined loading of the design basis earthquake and any contact between the bollard and cask during the design basis earthquake.

4.4 TSC Handling and Transfer Facility

The TSC provides a leaktight confinement boundary and is evaluated for normal and off-normal handling loads. A handling and transfer facility is not required for TSC and TRANSFER CASK handling and transfer operations within a 10 CFR 50 licensed facility or for utilizing an external crane structure integral to a 10 CFR 50 licensed facility.

Movements of the TRANSFER CASK and TSC outside of a 10 CFR 50 licensed facility are not permitted unless a TSC TRANSFER FACILITY is designed, operated, fabricated, tested, inspected, and maintained in accordance with the following requirements. These requirements do not apply to handling heavy loads under a 10 CFR 50 license.

The permanent or stationary weldment structure of the TSC TRANSFER FACILITY shall be designed to comply with the stress limits of ASME Code, Section III, Subsection NF, Class 3 for linear structures. All compression loaded members shall satisfy the buckling criteria of ASME Code, Section III, Subsection NF.

The reinforced concrete structure of the facility shall be designed in accordance with ACI-349 and the factored load combinations set forth in ACI-318 for the loads defined in Table A4-1 shall apply. TRANSFER CASK and TSC lifting devices installed in the handling facility shall be designed, fabricated, operated, tested, inspected, and maintained in accordance with NUREG-0612, Section 5.1.

(continued)

If mobile load lifting and handling equipment is used at the facility, that equipment shall meet the guidelines of NUREG-0612, Section 5.1, with the following conditions:

- a. The mobile lifting device shall have a minimum safety factor of two over the allowable load table for the lifting device in accordance with the guidance of NUREG-0612, Section 5.1.6 (1)(a), and shall be capable of stopping and holding the load during a design earthquake event;
 - b. The mobile lifting device shall contain ≤ 50 gallons of fuel during operation inside the ISFSI;
 - c. Mobile cranes are not required to meet the guidance of NUREG-0612, Section 5.1.6(2) for new cranes;
 - d. The mobile lifting device shall conform to the requirements of ASME B30.5, "Mobile and Locomotive Cranes";
 - e. Movement of the TSC or CONCRETE CASK in a horizontal orientation is not permitted.
-

Table A4-1 Load Combinations and Service Condition Definitions for the TSC Handling and Transfer Facility Structure

Load Combination	ASME Section III Service Condition for Definition of Allowable Stress	Note
D* D + S	Level A	All primary load bearing members must satisfy Level A stress limits
D + M + W ¹ D + F D + E D + Y	Level D	Factor of safety against overturning shall be ≥ 1.1 , if applicable.

D = Crane hook dead load
 D* = Apparent crane hook dead load
 S = Snow and ice load for the facility site
 M = Tornado missile load of the facility site¹
 W¹ = Tornado wind load for the facility site¹
 F = Flood load for the facility site
 E = Seismic load for the facility site
 Y = Tsunami load for the facility site

1. Tornado missile load may be reduced or eliminated based on a Probabilistic Risk Assessment for the facility site.

5.0 ADMINISTRATIVE CONTROLS AND PROGRAMS

The following programs shall be established, implemented and maintained.

5.1 Radioactive Effluent Control Program

- 5.1.1 A program shall be established and maintained to implement the requirements of 10 CFR 72.44 (d) or 10 CFR 72.126, as appropriate.
- 5.1.2 The MAGNASTOR SYSTEM does not create any radioactive materials or have any radioactive waste treatment systems. Therefore, specific operating procedures for the control of radioactive effluents are not required. LCO 3.3.2, TSC Surface Contamination, provides assurance that excessive surface contamination is not available for release as a radioactive effluent.
- 5.1.3 This program includes an environmental monitoring program. Each general license user may incorporate MAGNASTOR SYSTEM operations into their environmental monitoring program for 10 CFR Part 50 operations.

5.2 TSC Loading, Unloading, and Preparation Program

A program shall be established and maintained to implement the FSAR, Chapter 9 requirements for loading fuel and components into the TSC, unloading fuel and components from the TSC, and preparing the TSC and CONCRETE CASK for storage. The requirements of the program for loading and preparing the TSC shall be completed prior to removing the TSC from the 10 CFR 50 structure. The program shall provide for evaluation and control of the following FSAR requirements during the applicable operation:

- a. Verify that no TRANSFER CASK handling or CONCRETE CASK handling using the lifting lugs occurs when the ambient temperature is $< 0^{\circ}\text{F}$. This limit is NOT applicable to the stainless steel MTC or PMTC.
- b. The water temperature of a water-filled, or partially filled, loaded TSC shall be shown by analysis and/or measurement to be less than boiling at all times.
- c. Verify that the drying time, cavity vacuum pressure, and component and gas temperatures ensure that the fuel cladding temperature limit of 400°C is not exceeded during TSC preparation activities, including TRANSFER OPERATIONS, and that the TSC is adequately dry. For fuel with burnup $> 45 \text{ GWd/MTU}$, limit cooling cycles to ≤ 10 for temperature changes greater than 65°C .
- d. Verify that the helium backfill purity and mass assure adequate heat transfer and preclude fuel cladding corrosion.
- e. The integrity of the inner port cover welds to the closure lid at the vent port and at the drain port shall be verified in accordance with the procedures in Section 9.1.1.

(continued)

-
- f. Verify that the time to complete the transfer of the TSC from the TRANSFER CASK to the CONCRETE CASK and from a CONCRETE CASK to another CONCRETE CASK assures that the fuel cladding temperature limit of 400°C is not exceeded.
 - g. The surface dose rates of the CONCRETE CASK are adequate to allow proper storage and to assure consistency with the offsite dose analysis.
 - h. The equipment used to move the loaded CONCRETE CASK onto or from the ISFSI site contains no more than 50 gallons of fuel.

This program will control limits, surveillances, compensatory measures and appropriate completion times to assure the integrity of the fuel cladding at all times in preparation for and during LOADING OPERATIONS, UNLOADING OPERATIONS, TRANSPORT OPERATIONS, TRANSFER OPERATIONS and STORAGE OPERATIONS, as applicable.

5.3 Transport Evaluation Program

A program that provides a means for evaluating transport route conditions shall be developed to ensure that the design basis impact g-load drop limits are met. For lifting of the loaded TRANSFER CASK or CONCRETE CASK using devices that are integral to a structure governed by 10 CFR 50 regulations, 10 CFR 50 requirements apply. This program evaluates the site-specific transport route conditions and controls, including the transport route road surface conditions; road and route hazards; security during transport; ambient temperature; and equipment operability and lift heights. The program shall also consider drop event impact g-loading and route subsurface conditions, as necessary.

5.4 ISFSI Operations Program

A program shall be established to implement FSAR requirements for ISFSI operations.

At a minimum, the program shall include the following criteria to be verified and controlled:

- a. Minimum CONCRETE CASK center-to-center spacing.
- b. ISFSI pad parameters (i.e., thickness, concrete strength, soil modulus, reinforcement, etc.) are consistent with the FSAR analyses.
- c. Maximum CONCRETE CASK lift heights ensure that the g-load limits analyzed in the FSAR are not exceeded.

(continued)

5.5 Radiation Protection Program

- 5.5.1 Each cask user shall ensure that the 10 CFR 50 radiation protection program appropriately addresses dry storage cask loading and unloading, and ISFSI operations, including transport of the loaded CONCRETE CASK outside of facilities governed by 10 CFR 50. The radiation protection program shall include appropriate controls and monitoring for direct radiation and surface contamination, ensuring compliance with applicable regulations, and implementing actions to maintain personnel occupational exposures ALARA. The actions and criteria to be included in the program are provided as follows.
- 5.5.2 Each user shall perform a written evaluation of the TRANSFER CASK and associated operations, 30 days prior to first use, to verify that it meets public, occupational, and ALARA requirements (including shielding design and dose characteristics) in 10 CFR Part 20, and that it is consistent with the program elements of each user's radiation protection program. The evaluation should consider both normal operations and unanticipated occurrences, such as handling equipment malfunctions, during use of the transfer cask.
- 5.5.3 As part of the evaluation pursuant to 10 CFR 72.212(b)(5)(iii), the licensee shall perform an analysis to confirm that the dose limits of 10 CFR 72.104(a) will be satisfied under actual site conditions and ISFSI configuration, considering the number of casks to be deployed and the cask contents.
- 5.5.4 Each user shall establish limits on the surface contamination of the CONCRETE CASK, TSC and TRANSFER CASK, and procedures for the verification of meeting the established limits prior to removal of the components from the 10 CFR 50 structure. Surface contamination limits for the TSC prior to placement in STORAGE OPERATIONS shall meet the limits established in LCO 3.3.2.

5.6 Special Requirements for the First System Placed in Service

The heat transfer characteristics and thermal performance of the MAGNASTOR SYSTEM will be validated by recorded mass flow measurements in the air flow cooling passages of the first system placed in service with a heat load equal to or greater than 30 kW. A letter report summarizing the results of the measurements with respect to analyses of the actual canister content will be submitted to the NRC in accordance with 10 CFR 72.4 within 60 days of placing the loaded cask on the ISFSI pad. The report will include a comparison of the calculated mass flow of the MAGNASTOR SYSTEM at the loaded heat load to the measured mass flow. A report is not required to be submitted for the MAGNASTOR SYSTEMS that are subsequently loaded, provided that the performance of the first system placed in service with a heat load of ≥ 30 kW is demonstrated by the comparison of the calculated and measured mass flow rates.

(continued)

5.7 Training Program

A training program for the MAGNASTOR system shall be developed under the general licensee's systematic approach to training (SAT). Training modules shall include comprehensive instructions for the operation and maintenance of the MAGNASTOR system and the independent spent fuel storage installation (ISFSI).

5.8 Preoperational Testing and Training Exercises

A dry run training exercise on loading, closure, handling, unloading, and transfer of the MAGNASTOR system shall be conducted by the licensee prior to the first use of the system to load spent fuel assemblies. The training exercise shall not be conducted with spent fuel in the TSC. The dry run may be performed in an alternate step sequence from the actual procedures, but all steps must be performed. The dry run shall include, but is not limited to, the following:

- a. Moving the CONCRETE CASK into its designated loading area
- b. Moving the TRANSFER CASK containing the empty TSC into the spent fuel pool
- c. Loading one or more dummy fuel assemblies into the TSC, including independent verification
- d. Selection and verification of fuel assemblies to ensure conformance with appropriate loading configuration requirements
- e. Installing the closure lid
- f. Removal of the TRANSFER CASK from the spent fuel pool
- g. Closing and sealing of the TSC to demonstrate pressure testing, vacuum drying, helium backfilling, welding, weld inspection and documentation, and leak testing
- h. TRANSFER CASK movement through the designated load path
- i. TRANSFER CASK installation on the CONCRETE CASK
- j. Transfer of the TSC to the CONCRETE CASK
- k. CONCRETE CASK lid assembly installation
- l. Transport of the CONCRETE CASK to the ISFSI
- m. TSC removal from the CONCRETE CASK
- n. TSC unloading, including refueling and weld removal or cutting

Appropriate mock-up fixtures may be used to demonstrate and/or to qualify procedures, processes or personnel in welding, weld inspection, vacuum drying, helium backfilling, leak testing and weld removal or cutting. Previously completed and documented demonstrations of specific processes and procedures may be used, as applicable, for implementation of the MAGNASTOR SYSTEM at a specific loading facility.

PROPOSED

APPENDIX B

APPROVED CONTENTS
FOR THE MAGNASTOR SYSTEM

AMENDMENT 7

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1.0 FUEL SPECIFICATIONS AND LOADING CONDITIONS

The MAGNASTOR SYSTEM is designed to safely store up to 37 undamaged PWR fuel assemblies in the 37 PWR Basket Assembly or up to 87 undamaged BWR fuel assemblies in the 87 BWR Basket Assembly. The system is also designed to store up to 4 damaged fuel cans (DFCs) in the DF Basket Assembly. The DF Basket Assembly has a capacity of up to 37 undamaged PWR fuel assemblies including 4 DFC locations. DFCs may be placed in up to 4 of the DFC locations. Each DFC may contain an undamaged PWR fuel assembly, a damaged PWR fuel assembly, or PWR FUEL DEBRIS equivalent to one PWR fuel assembly. FUEL DEBRIS is included in the definition of DAMAGED FUEL (Appendix A, Section 1.1). PWR UNDAMAGED FUEL assemblies may be placed directly in the DFC locations of a DF Basket Assembly without the use of a DFC.

The system requires few operating controls. The principal controls and limits for MAGNASTOR are satisfied by the selection of fuel for storage that meets the Approved Contents presented in this section and in the tables for MAGNASTOR design basis spent fuels.

If any Fuel Specification or Loading Condition of this section is violated, the following actions shall be completed:

- The affected fuel assemblies shall be placed in a safe condition.
- Within 24 hours, notify the NRC Operations Center.
- Within 60 days, submit a special report that describes the cause of the violation and actions taken to restore or demonstrate compliance and prevent reoccurrence.

2.0 FUEL TO BE STORED IN THE MAGNASTOR SYSTEM

UNDAMAGED PWR FUEL ASSEMBLIES, DAMAGED PWR FUEL ASSEMBLIES, PWR FUEL DEBRIS (DAMAGED FUEL), UNDAMAGED BWR FUEL ASSEMBLIES and NONFUEL HARDWARE meeting the limits specified in Tables B2-1 through B2-41 may be stored in the MAGNASTOR SYSTEM.

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Table B2-1 TSC with PWR Fuel Limits

I. TSC with PWR Fuel Basket	
A. Allowable Contents	
1. Uranium PWR UNDAMAGED FUEL ASSEMBLIES listed in Tables B2-2 and B2-3 and meeting the following specifications:	
a. Cladding Type:	Zirconium-based alloy.
b. Enrichment, Post-irradiation Cooling Time and Average Assembly Burnup:	Generic maximum enrichment limits are shown in Table B2-2. The physical characteristics of the different PWR SNF ASSEMBLIES are defined in Table B2-3. The fuel type specific maximum enrichments as a function of neutron absorber sheet areal density at various minimum soluble boron levels are defined in Table B2-4. For variable enrichment SNF assemblies, maximum enrichments represent peak rod enrichments. Combined minimum enrichment, maximum SNF assembly average burnup and minimum cool time limits are shown generically in Tables B2-15 through B2-22 and specifically for WE 14x14 in Tables B2-25 through B2-33 and CE 16x16 in Tables B2-34 through B2-41. For SNF assembly average burnup levels below those shown in Tables B2-15 through B2-22, an SNF assembly minimum cool time is specified generically in Table B2-13, provided that the minimum initial SNF assembly average enrichment limits are applied. The minimum cool times for fuel in TSCs transferred via the PMTC are specified in Tables B2-42 and B2-43.
c. Decay Heat Per SNF Assembly	
1) Preferential Loading:	≤ 1,200 watts ^a
2) Uniform Loading:	≤ 959 watts ^b
d. Nominal Fresh Fuel Assembly Length (in.):	≤ 178.3
e. Nominal Fresh Fuel Assembly Width (in.):	≤ 8.54
f. Weight Per Storage Location (lbs.):	≤ 1,765, including SNF Assembly, NONFUEL HARDWARE and fuel spacers
g. Total Canister Weight (lbs.):	≤ 104,500, including TSC and contents (SNF Assemblies, NONFUEL HARDWARE and fuel spacers)
B. Quantity per TSC: Up to 37 PWR UNDAMAGED SNF ASSEMBLIES as shown in Figure B2-1.	

(continued)

^a 1,800 Watts for the four-zone preferential loading with WE 14x14 and CE 16x16 fuel

^b 811 Watts for the PMTC with CE 16x16 fuel only

Table B2-1 TSC with PWR Fuel Limits (continued)

- C. PWR UNDAMAGED SNF ASSEMBLIES may contain NONFUEL HARDWARE. SNF assembly lattices possessing less than the nominal number of undamaged fuel rods specified in Table B2-3 must contain solid filler rods that displace a volume equal to, or greater than, that of the fuel rod that the filler rod replaces. SNF assemblies may have stainless steel rods inserted to displace guide tube "dashpot" water. NONFUEL HARDWARE cool times shall be in accordance with Tables B2-5, B2-6, and B2-7. Alternatively, the ^{60}Co curie limits in Tables B2-6 and B2-7 may be used to establish site-specific NONFUEL HARDWARE constraints.
- D. Spacers may be used in a TSC to axially position SNF assemblies to facilitate handling and operations.
- E. Unenriched fuel assemblies and unirradiated (i.e., not inserted in-core) fuel assemblies are not authorized for loading. Low enriched, unenriched, and/or annular fuel pellet axial end blankets are permitted, provided that the nominal length of the blanket is not greater than six (6) inches.
- F. SNF may be loaded uniformly at a maximum heat load of 959 watts/assembly (Figure B2-1). Alternatively, a preferential loading pattern may be applied as described in Table B2-8 and Figure B2-2. TSCs to be transferred via the PMTC may be loaded at a maximum heat load of 811 watts/assembly.
- G. RCCs are restricted to fuel storage locations No. 11, 12, 13, 18, 19, 20, 25, 26 and 27 (Figure B2-1). Minimum RCC cool times are:

Minimum Cool Time (years)	Maximum Exposure (GWd/MTU)
10 ^a	180
14	270
20	360

- H. One Neutron Source, or Neutron Source Assembly (NSA) is permitted to be loaded in a TSC in fuel storage locations No. 11, 12, 13, 18, 19, 20, 25, 26, or 27 (Figure B2-1). Neutron source assemblies may contain source rods attached to hardware similar in configuration to guide tube plug devices (thimble-plugs) and burnable absorbers, in addition to containing burnable poison rodlets and/or thimble plug rodlets. For NSAs containing absorber rodlets, the BPAA cool time and burnup/exposure or hardware ^{60}Co curie limit listed in Table B2-6 are applied to the neutron sources. NSAs having only thimble plug rodlets require the thimble plug restriction in Table B2-7 to be applied. Combination NSAs, containing both thimble plug and burnable absorber rodlets must apply the more limiting of the two minimum cool time/curie limit.
- I. Fuel assemblies may contain any number of unirradiated (i.e., not inserted in-core) nonfuel solid filler fuel replacement rods. Activated stainless steel rods are limited to 5 per assembly at a maximum burnup/exposure of 32.5 GWd/MTU.
- J. Fuel assemblies may contain an HFRA at a maximum burnup/exposure of 4.0 GWd/MTU and a minimum cool time of 16 years.

(continued)

^a 2.5 years for the WE 14x14 RCC in uniform and four-zone preferential loading and 5.0 years for the CE 16x16 RCC in uniform and four-zone preferential loading (footnote not applicable for PMTC payloads)

Table B2-1 TSC with PWR Fuel Limits (continued)

II. TSC with DF Basket Assembly

A. Allowable Contents

1. Uranium PWR UNDAMAGED SNF ASSEMBLIES and DAMAGED FUEL (PWR DAMAGED SNF ASSEMBLIES or PWR FUEL DEBRIS) listed in Tables B2-2 and B2-3 and meeting the following specifications:

- | | |
|---|---|
| a. Cladding Type: | Zirconium-based alloy. |
| b. Enrichment, Post-irradiation Cooling Time and Average Assembly Burnup: | Generic maximum enrichment limits are shown in Table B2-2. The physical characteristics of the different PWR SNF ASSEMBLIES are defined in Table B2-3. The fuel type specific maximum enrichments as a function of neutron absorber sheet areal density at various minimum soluble boron levels are defined in Table B2-4. For variable enrichment SNF assemblies, maximum SNF enrichments represent peak rod enrichments. Combined minimum enrichment, maximum SNF assembly average burnup and minimum cool time limits are shown generically in Tables B2-15 through B2-22 and specifically for WE 14x14 in Tables B2-25 through B2-33 and CE 16x16 in Tables B2-34 through B2-41. For SNF assembly average burnup levels below those shown in Tables B2-15 through B2-22, an SNF assembly minimum cool time is specified generically in Table B2-13, provided that the minimum initial SNF assembly average enrichment limits are applied. The minimum cool times for fuel in TSCs transferred via the PMTC are specified in Tables B2-42 and B2-43. |

c. Decay Heat Per SNF Assembly

- | | |
|---------------------------|---------------------------------|
| 1). Preferential Loading: | $\leq 1,200$ watts ^a |
| 2). Uniform Loading: | ≤ 959 watts ^b |

d. Nominal Fresh SNF Assy: ≤ 178.3

e. Nominal Fresh SNF Assembly Width (in.): ≤ 8.54

f. Weight Per Storage location (lbs.) $\leq 1,765$, including SNF Assembly, NONFUEL HARDWARE, DFC and fuel spacer

g. g. Total Canister Weight (lbs.): $\leq 104,500$, including TSC and contents (SNF Assemblies, NONFUEL HARDWARE and fuel spacers)

(continued)

^a 1,800 Watts for the four-zone preferential loading with WE 14x14 and CE 16x16 fuel

^b 811 Watts for the PMTC with CE 16x16 fuel only

Table B2-1 TSC with PWR Fuel Limits (continued)

- B. Quantity per TSC: Up to a total of 37 PWR UNDAMAGED SNF ASSEMBLIES including up to four (4) DFCs containing PWR UNDAMAGED SNF ASSEMBLIES, PWR DAMAGED SNF ASSEMBLIES, and/or PWR FUEL DEBRIS loaded in the DFC locations No. 4, 8, 30 and 34, as shown on Figure B2-3, for the DF Basket Assembly.
- C. The contents of a DFC must be less than, or equivalent to, one PWR UNDAMAGED SNF ASSEMBLY. PWR SNF ASSEMBLIES loaded in a DFC shall not contain NONFUEL HARDWARE with the exception of instrument tube tie components, guide tube anchors or similar devices, and steel inserts.
- D. PWR UNDAMAGED SNF ASSEMBLIES not loaded in a DFC may contain NONFUEL HARDWARE consistent with Table B2-5. SNF assembly lattices not containing the nominal number of fuel rods specified in Table B2-3 must contain solid filler rods that displace a volume equal to, or greater than, that of the fuel rod that the filler rod replaces. SNF assemblies may have stainless steel rods inserted to displace guide tube "dashpot" water. NONFUEL HARDWARE cool times shall be in accordance with Tables B2-5, B2-6, and B2-7. Alternatively, the ^{60}Co curie limits in Tables B2-6 and B2-7 may be used to establish site-specific NONFUEL HARDWARE constraints. Alternatively, the ^{60}Co curie limits in Tables B2-6 and B2-7 may be used to establish site-specific NONFUEL HARDWARE constraints.
- E. Spacers may be used in a TSC to axially position PWR UNDAMAGED SNF ASSEMBLIES, and DFCs to facilitate handling and operation.
- F. Unenriched fuel assemblies and unirradiated (i.e., not inserted in-core) fuel assemblies are not authorized for loading. Low enriched, unenriched, and/or annular fuel pellet axial end blankets are permitted, provided that the nominal length of the end blanket is not greater than six (6) inches.
- G. RCCs are restricted to fuel storage locations No. 11, 12, 13, 18, 19, 20, 25, 26 and 27 (Figure B2-3). Minimum RCC cool times are:

Minimum Cool Time (years)	Maximum Exposure (GWd/MTU)
10 ^a	180
14	270
20	360

(continued)

^a 2.5 years for the WE 14x14 RCC in uniform and four-zone preferential loading and 5.0 years for the CE 16x16 RCC in uniform and four-zone preferential loading (footnote not applicable for PMTC payloads)

Table B2-1 TSC with PWR Fuel Limits (continued)

- H. One Neutron Source, or Neutron Source Assembly (NSA) is permitted to be loaded in a TSC in fuel storage locations No. 11, 12, 13, 18, 19, 20, 25, 26 or 27 (Figure B2-1). Neutron source assemblies may contain source rods attached to hardware similar in configuration to guide tube plug devices (thimble plugs) and burnable absorbers, in addition to containing burnable poison rodlets and/or thimble plug rodlets. For NSAs containing absorber rodlets, the BPAA cool time and burnup/exposure or hardware ^{60}Co curie limit listed in Table B2-6 are applied to the neutron sources. NSAs having only thimble plug rodlets require the thimble plug restriction in Table B2-7 to be applied. Combination NSAs, containing both thimble plug and burnable absorber rodlets must apply the more limiting of the two minimum cool time/curie limit.
- I. Fuel assemblies may contain any number of unirradiated (i.e., not inserted in-core) nonfuel solid filler fuel replacement rods. Activated stainless steel rods are limited to 5 per assembly at a maximum burnup/exposure of 32.5 GWd/MTU.
- J. Fuel assemblies may contain an HFRA at a maximum burnup/exposure of 4.0 GWd/MTU and a minimum cool time of 16 years.

Table B2-2 PWR Fuel Assembly Characteristics

Characteristic	14x14	14x14	15x15	15x15	16x16	17x17
Max Initial Enrichment (wt % ²³⁵ U)	5.0	5.0	5.0	5.0	5.0	5.0
Min Initial Enrichment (wt % ²³⁵ U)	1.3	1.3	1.3	1.3	1.3	1.3
Number of Fuel Rods	176	179	204	208	236	264
Max Assembly Average Burnup (MWd/MTU)	60,000	60,000	60,000	60,000	60,000	60,000
Peak Average Rod Burnup (MWd/MTU)	62,500	62,500	62,500	62,500	62,500	62,500
Min Cool Time (years)	4	4 ²	4	4	4	4
Max Weight (lb) per Storage Location	See Note 1	See Note 1	See Note 1	See Note 1	See Note 1	See Note 1
Max Decay Heat (Watts) per Preferential Storage Location	1,200	1,800	1,200	1,200	1,800	1,200

- All reported enrichment values are nominal preirradiation fabrication values.
- Maximum initial enrichment is based on a minimum soluble boron concentration in the spent fuel pool water. Required soluble boron content is fuel type and enrichment specific. Minimum soluble boron content varies between 1,500 and 2,500 ppm. Maximum initial enrichment represents the peak fuel rod enrichment for variably-enriched fuel assemblies.

Notes:

1. Maximum weight per storage location is as detailed in Table B2-1
2. Minimum cool time of 2.5 years for WE 14x14 PWR fuel for uniform and four-zone preferential loading

Table B2-3 Bounding PWR Fuel Assembly Loading Criteria

Assembly Type	No. of Fuel Rods	No. of Guide Tubes ¹	Geometry ²					
			Max Pitch (inch)	Min Clad OD (inch)	Min Clad Thick. (inch)	Max Pellet OD (inch)	Max Active Length (inch)	Max Load (MTU)
BW15H1	208	17	0.568	0.43	0.0265	0.3686	144.0	0.4858
BW15H2	208	17	0.568	0.43	0.025	0.3735	144.0	0.4988
BW15H3	208	17	0.568	0.428	0.023	0.3742	144.0	0.5006
BW15H4	208	17	0.568	0.414	0.022	0.3622	144.0	0.4690
BW17H1	264	25	0.502	0.377	0.022	0.3252	144.0	0.4799
CE14H1	176	5	0.58	0.44	0.026	0.3805	137.0	0.4167
CE16H1	236	5	0.5063	0.382	0.025	0.325	150.0	0.4463
WE14H1	179	17	0.556	0.40	0.0162	0.3674	145.2	0.4188
WE15H1	204	21	0.563	0.422	0.0242	0.3669	144.0	0.4720
WE15H2	204	21	0.563	0.417	0.0265	0.357	144.0	0.4469
WE17H1	264	25	0.496	0.372	0.0205	0.3232	144.0	0.4740
WE17H2	264	25	0.496	0.36	0.0225	0.3088	144.0	0.4327

¹ Combined number of guide and instrument tubes.

² Assembly characteristics represent cold, unirradiated, nominal configurations.

Note: Amendment No. 2 removed the enrichment/soluble boron limits from this table, along with the note pertaining to them. This information is now presented in Table B2-4.

**Table B2-4 Bounding PWR Fuel Assembly Loading Criteria –
Enrichment/Soluble Boron Limits**

TSC with Undamaged PWR Fuel Basket Assembly Max. Initial Enrichment (wt % ²³⁵ U)															
Soluble Boron	Absorber ^a 0.036 ¹⁰ B g/cm ²					Absorber ^a 0.030 ¹⁰ B g/cm ²					Absorber ^a 0.027 ¹⁰ B g/cm ²				
	1500 (ppm)	1750 (ppm)	2000 (ppm)	2250 (ppm)	2500 (ppm)	1500 (ppm)	1750 (ppm)	2000 (ppm)	2250 (ppm)	2500 (ppm)	1500 (ppm)	1750 (ppm)	2000 (ppm)	2250 (ppm)	2500 (ppm)
BW15H1	3.7%	4.1%	4.4%	4.7%	5.0%	3.6%	4.0%	4.2%	4.5%	4.8%	3.6%	3.9%	4.2%	4.5%	4.8%
BW15H2	3.7%	4.0%	4.3%	4.6%	4.9%	3.6%	3.9%	4.2%	4.5%	4.8%	3.6%	3.8%	4.1%	4.4%	4.7%
BW15H3	3.7%	4.0%	4.3%	4.6%	4.9%	3.6%	3.9%	4.2%	4.4%	4.7%	3.5%	3.8%	4.1%	4.4%	4.7%
BW15H4	3.8%	4.2%	4.5%	4.8%	5.0%	3.7%	4.1%	4.4%	4.7%	5.0%	3.7%	4.0%	4.3%	4.6%	5.0%
BW17H1	3.7%	4.0%	4.3%	4.6%	4.9%	3.6%	3.9%	4.2%	4.5%	4.8%	3.6%	3.9%	4.1%	4.5%	4.7%
CE14H1	4.5%	4.8%	5.0%	5.0%	5.0%	4.3%	4.7%	5.0%	5.0%	5.0%	4.3%	4.6%	5.0%	5.0%	5.0%
CE16H1	4.4%	4.8%	5.0%	5.0%	5.0%	4.3%	4.6%	5.0%	5.0%	5.0%	4.2%	4.6%	4.9%	5.0%	5.0%
WE14H1	4.7%	5.0%	5.0%	5.0%	5.0%	4.6%	5.0%	5.0%	5.0%	5.0%	4.5%	5.0%	5.0%	5.0%	5.0%
WE15H1	3.8%	4.2%	4.5%	4.8%	5.0%	3.7%	4.1%	4.4%	4.7%	5.0%	3.7%	4.0%	4.3%	4.6%	4.9%
WE15H2	4.0%	4.4%	4.7%	5.0%	5.0%	3.9%	4.2%	4.6%	4.9%	5.0%	3.8%	4.2%	4.5%	4.8%	5.0%
WE17H1	3.7%	4.1%	4.4%	4.7%	5.0%	3.7%	4.0%	4.3%	4.6%	4.9%	3.6%	3.9%	4.2%	4.5%	4.9%
WE17H2	4.0%	4.3%	4.7%	5.0%	5.0%	3.9%	4.3%	4.6%	4.9%	5.0%	3.8%	4.2%	4.5%	4.9%	5.0%

TSC with Damaged PWR Fuel Basket Assembly Max. Initial Enrichment (wt % ²³⁵ U)															
BW15H1	3.7%	4.0%	4.3%	4.6%	4.9%	3.6%	3.9%	4.2%	4.5%	4.7%	3.6%	3.8%	4.1%	4.4%	4.7%
BW15H2	3.6%	3.9%	4.2%	4.5%	4.8%	3.6%	3.8%	4.1%	4.4%	4.7%	3.5%	3.8%	4.1%	4.3%	4.6%
BW15H3	3.6%	3.9%	4.2%	4.5%	4.8%	3.5%	3.8%	4.1%	4.4%	4.6%	3.5%	3.8%	4.0%	4.3%	4.6%
BW15H4	3.8%	4.1%	4.4%	4.7%	5.0%	3.7%	4.0%	4.3%	4.6%	4.9%	3.6%	3.9%	4.2%	4.5%	4.8%
BW17H1	3.6%	3.9%	4.2%	4.5%	4.8%	3.6%	3.9%	4.1%	4.4%	4.7%	3.5%	3.8%	4.1%	4.4%	4.6%
CE14H1	4.4%	4.8%	5.0%	5.0%	5.0%	4.3%	4.7%	5.0%	5.0%	5.0%	4.3%	4.6%	4.9%	5.0%	5.0%
CE16H1	4.4%	4.7%	5.0%	5.0%	5.0%	4.2%	4.6%	5.0%	5.0%	5.0%	4.2%	4.5%	4.9%	5.0%	5.0%
WE14H1	4.6%	5.0%	5.0%	5.0%	5.0%	4.5%	5.0%	5.0%	5.0%	5.0%	4.5%	4.9%	5.0%	5.0%	5.0%
WE15H1	3.8%	4.1%	4.4%	4.7%	5.0%	3.7%	4.0%	4.3%	4.6%	4.9%	3.6%	4.0%	4.3%	4.6%	4.8%
WE15H2	3.9%	4.3%	4.6%	4.9%	5.0%	3.8%	4.2%	4.5%	4.8%	5.0%	3.8%	4.1%	4.4%	4.7%	5.0%
WE17H1	3.7%	4.0%	4.3%	4.6%	4.9%	3.6%	3.9%	4.2%	4.5%	4.8%	3.6%	3.9%	4.2%	4.5%	4.8%
WE17H2	3.9%	4.3%	4.6%	5.0%	5.0%	3.9%	4.2%	4.5%	4.9%	5.0%	3.8%	4.1%	4.5%	4.8%	5.0%

- Specified soluble boron concentrations are independent of whether an assembly contains a nonfuel insert.

^a Borated aluminum neutron absorber sheet effective areal ¹⁰B density.

**Table B2-5 Additional SNF Assembly Cool Time Required to Load NONFUEL
HARDWARE**

Assy		Uniform	Three-Zone			Four-Zone			
			A	B	C	A	B1	B2	C
CE 14x14	BPAA/HFRA	--	--	--	--	--	--	--	--
	GTPD/NSA	--	--	--	--	--	--	--	--
	RCC	0.2	0.2	0.1	0.2	--	--	--	--
WE 14x14	BPAA/HFRA	0.5	0.5	0.2	0.7	1.4	0.1	0.1	0.7
	GTPD/NSA	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1
	RCC ^f	0.7	2.3	0.7	4.1	2.2	0.2	0.1	1.0
WE 15x15	BPAA/HFRA	0.5	0.6	0.2	0.8	--	--	--	--
	GTPD/NSA	0.1	0.1	0.1	0.1	--	--	--	--
	RCC	3.1	3.4	1.5	4.5	--	--	--	--
B&W 15x15	BPAA/HFRA	0.1	0.1	0.1	0.1	--	--	--	--

^f WE14x14 Uniform and four-zone preferential are evaluated using RCC with 2.5-year minimum cool time

	GTPD/NSA	0.1	0.1	0.1	0.1	--	--	--	--
	RCC	0.2	0.2	0.1	0.2	--	--	--	--
CE 16x16	BPAA/HFRA	--	--	--	--	--	--	--	--
	GTPD/NSA	--	--	--	--	--	--	--	--
	RCC ^g	0.4 ^h	0.2	0.1	0.3	0.8	0.1	0.1	0.4
WE 17x17	BPAA/HFRA	0.5	0.6	0.2	0.7	--	--	--	--
	GTPD/NSA	0.1	0.1	0.1	0.1	--	--	--	--
	RCC	2.9	3.3	1.4	4.3	--	--	--	--
B&W 17x17	BPAA/HFRA	0.1	0.1	0.1	0.1	--	--	--	--
	GTPD/NSA	0.1	0.1	0.1	0.1	--	--	--	--
	RCC	0.2	0.2	0.1	0.2	--	--	--	--

Note: Additional SNF assembly cooling time to be added to the minimum SNF assembly cool time based on SNF assembly initial enrichment and SNF assembly average burnup listed in Tables B2-15 through B2-22 and B2-25 through B2-43.

^g CE16x16 Uniform and four-zone preferential are evaluated using RCC with 5-year minimum cool time

^h 0.4 years for RCC in the PMTC (reduced storage location heat load). For all other cask types, 0.3 years for RCC 5-year minimum cool time or 0.2 years for RCC with 10-year minimum cool time

Table B2-6 Allowed BPAA/NSA Burnup and Cool Time Combinations

Maximum Burnup (GWd/MTU)	Minimum Cool Time (yrs)				
	WE 14×14	WE 15×15	B&W 15×15	WE 17×17	B&W 17×17
10	0.5	0.5	0.5	0.5	0.5
15	0.5	0.5	0.5	0.5	0.5
20	0.5	1.0	2.0	2.0	0.5
25	1.0	2.5	3.5	3.5	1.0
30	2.5	4.0	5.0	5.0	2.5
32.5	3.0	4.5	6.0	6.0	3.0
35	3.5	5.0	6.0	6.0	3.5
37.5	4.0	6.0	7.0	7.0	4.0
40	4.5	6.0	7.0	7.0	4.5
45	5.0	7.0	8.0	8.0	6.0
50	6.0	8.0	9.0	9.0	7.0
55	7.0	8.0	10.0	9.0	7.0
60	7.0	9.0	10.0	10.0	8.0
65	8.0	10.0	12.0	12.0	8.0
70	8.0	10.0	12.0	12.0	9.0
Max ⁶⁰ Co Activity (Ci)	718	733	19	637	26

Note: Specified minimum cool times for BPRAs are independent of the required minimum cool times for the fuel assembly containing the BPRA.

Table B2-7 Allowed GTPD/NSA Burnup and Cool Time Combinations

Maximum Burnup (GWd/MTU)	Minimum Cool Time (yrs)				
	WE 14×14	WE 15×15	B&W 15×15	WE 17×17	B&W 17×17
45	2.0	3.5	7.0	5.0	6.0
90	6.0	7.0	10.0	9.0	10.0
135	7.0	9.0	12.0	10.0	12.0
180	8.0	9.0	14.0	12.0	12.0
⁶⁰ Co Activity (Ci)	63.5	64.1	56.9	64.0	63.6

Note: Specified minimum cool times for thimble plugs are independent of the required minimum cool times for the fuel assembly containing the thimble plug.

Table B2-8 PWR Fuel Preferential Loading Pattern Definitions

Three-Zone

Zone Description (see Figure B2-2)	Designator	Maximum Heat Load (W/assy)	# Assemblies
Inner Zone	A	922	9
Middle Zone	B	1,200	12
Outer Zone	C	800	16

Four-Zone

Zone Description (see Figure B2-2)	Designator	Maximum Heat Load (W/assy)	# Assemblies
Inner Zone	A	513	9
Middle Zone	B1	1,300	8
	B2	1,800	4
Outer Zone	C	830	16

Figure B2-1 Schematic of 37-Assembly PWR Basket

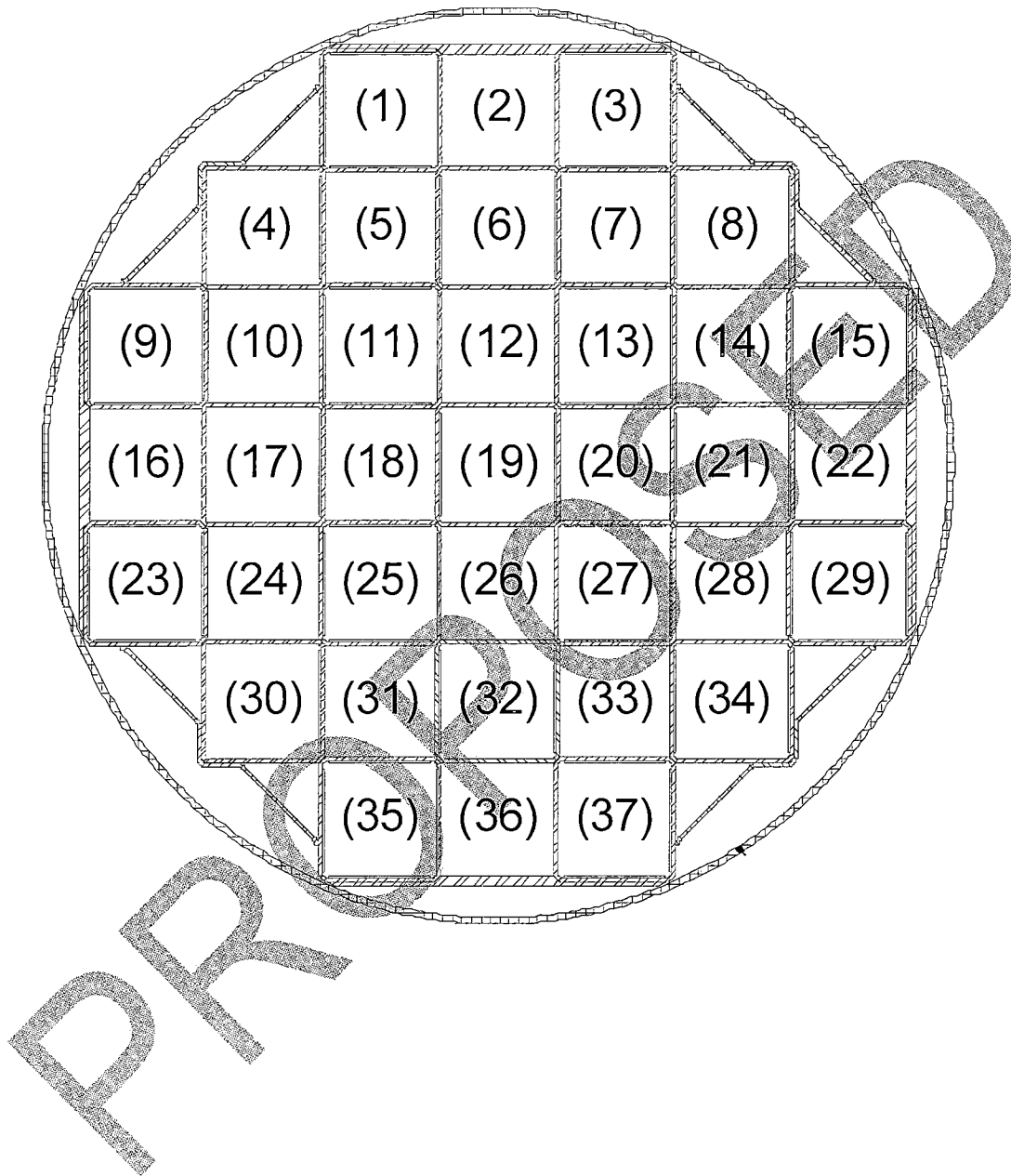
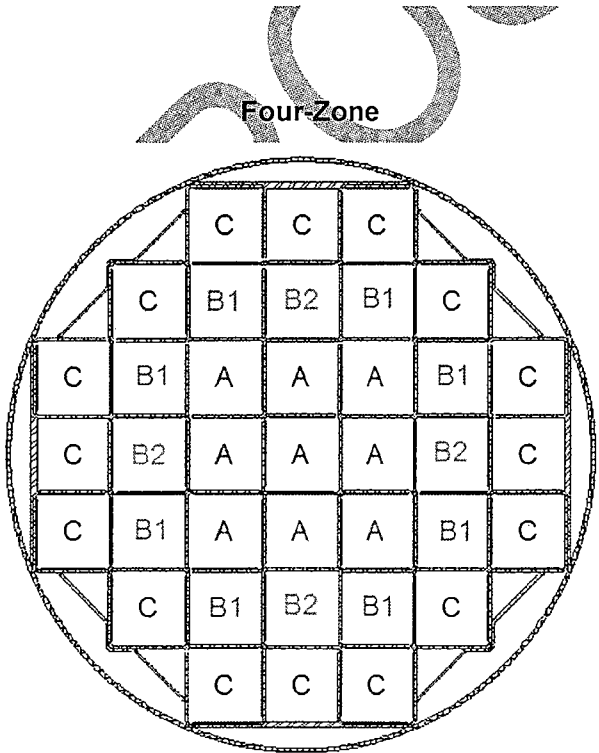
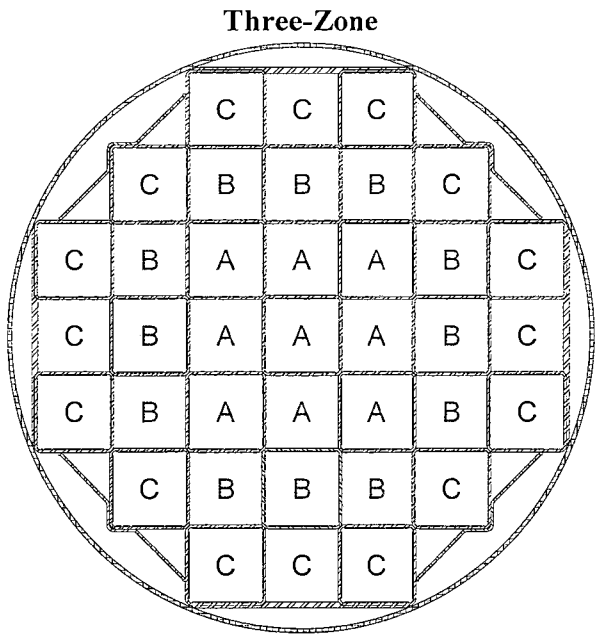
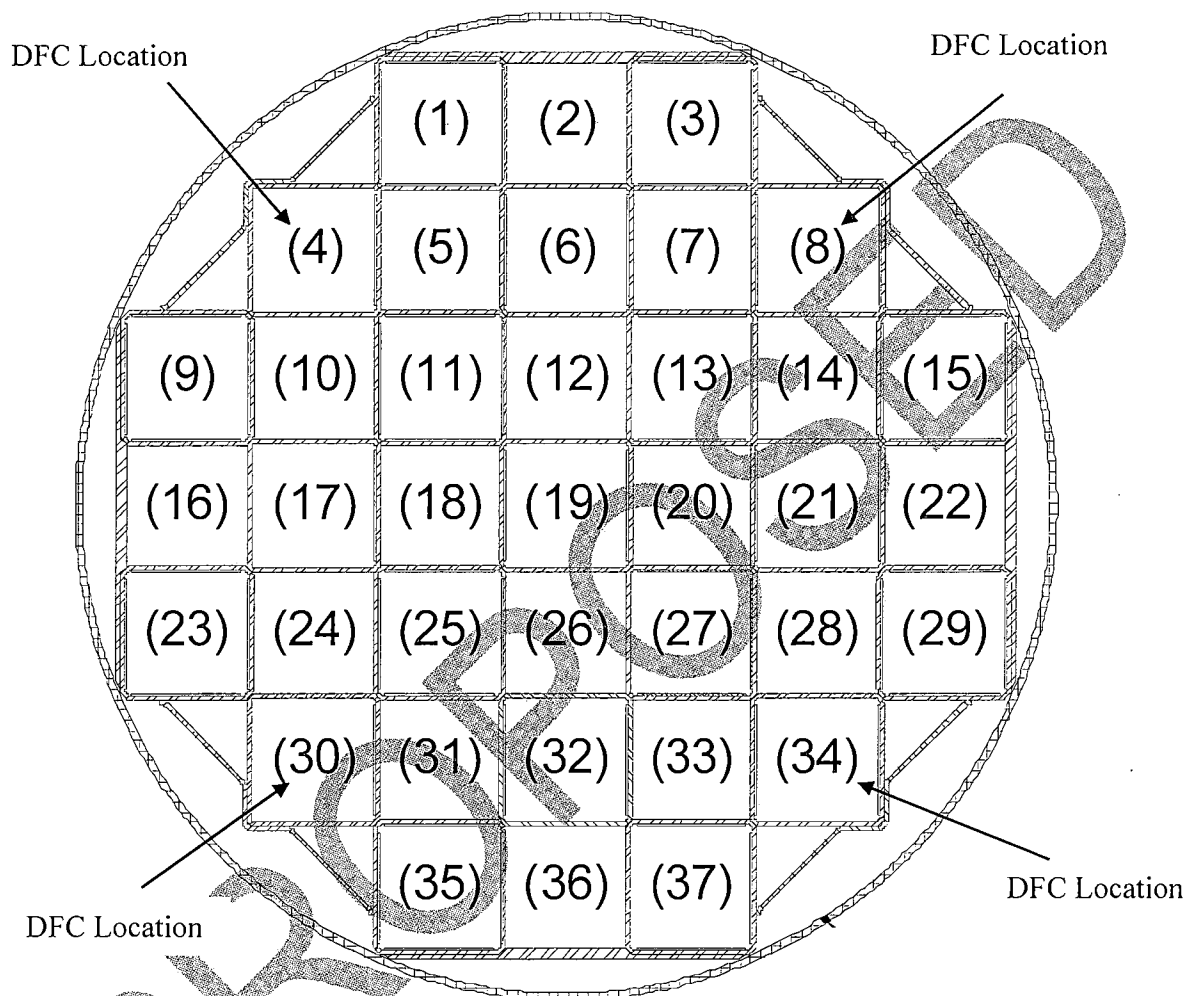


Figure B2-2 Schematic of 37-Assembly PWR Basket Preferential Loading Patterns



Refer to Table B2-8 for Maximum Heat Loads

Figure B2-3 Schematic of DF Basket Assembly Configuration for PWR SNF with DFCs



DFC designated locations may contain a loaded DFC or a PWR UNDAMAGED SNF ASSEMBLY.

Table B2-9 TSC with BWR Fuel Limits

I. BWR FUEL	
A. Allowable Contents	
1. Uranium BWR UNDAMAGED FUEL assemblies listed in Tables B2-10 and B2-11 and meeting the following specifications:	
a. Cladding Type:	Zirconium-based alloy.
b. Enrichment: Post-irradiation Cooling Time and Assembly Average Burnup	Generic maximum INITIAL PEAK PLANAR-AVERAGE ENRICHMENTS are shown in Table B2-10. The physical characteristics of the different BWR SNF ASSEMBLIES are defined in Table B2-11. Fuel type specific enrichment limits for the 87-assembly and 82-assembly BWR fuel basket configurations are defined in Table B2-12 as a function of neutron absorber areal density. Combined minimum enrichment, maximum SNF assembly average burnup and minimum cool time limits are shown in Table B2-23 and Table B2-24. For SNF assembly average burnup levels below those shown in Table B2-23 and Table B2-24, an SNF assembly minimum cool time is specified in Table B2-14, provided that the minimum initial SNF assembly average enrichment limits are applied.
c. Decay Heat per SNF Assembly:	≤ 379 watts
d. Nominal Fresh Fuel Design SNF Assembly Length (in.):	≤ 176.2
e. Nominal Fresh Fuel Design SNF Assembly Width (in.):	≤ 5.52
f. SNF Assembly Weight (lb):	≤ 704 , including channels
B. Quantity per TSC: Up to 87 BWR UNDAMAGED SNF ASSEMBLIES. With the exception of the designated nonfuel locations in the 82-assembly basket configuration, fuel storage locations not containing a fuel assembly shall have an empty fuel cell insert installed. Prior to use of the 86 and 82-assembly configurations, the cell fuel storage locations as noted and shown in Figures B2-4 and B2-5 must be physically blocked to prevent fuel assembly loading, respectively.	

(continued)

Table B2-9 TSC with BWR Fuel Limits (continued)

- C. BWR fuel assemblies may be unchanneled, or channeled with zirconium-based alloy channels.
- D. BWR fuel assemblies with stainless steel channels are not authorized.
- E. SNF Assembly lattices possessing less than the nominal number of undamaged fuel rods (see Table B2-11) must contain solid filler rods that displace a volume equal to, or greater than, that of the fuel rod that the filler rod replaces.
- F. Spacers may be used in a TSC to axially position BWR SNF assemblies to facilitate handling.
- G. Unirradiated (i.e., not inserted in-core) fuel assemblies are not authorized for loading. Unenriched axial blankets are permitted, provided that the nominal length of the blanket is not greater than six (6) inches.
- H. Allowable SNF assembly locations for the 86-assembly fuel basket configuration is shown in Figure B2-4.
- I. Allowable SNF assembly locations for the standard and alternate 82-assembly fuel basket configurations are shown in Figure B2-5.

Table B2-10 BWR SNF Assembly Characteristics

Characteristic	Fuel Class			
	7×7	8×8	9×9	10×10
Max Initial Enrichment (wt % ²³⁵ U)	4.5	4.5	4.5	4.5
Number of Fuel Rods	48/49	59/60/61/ 62/63/64	72/74 ⁽¹⁾ /76/ 79/80	91(a)/92(a)/ 96(a)/100
Max Assembly Average Burnup (MWd/MTU)	60,000	60,000	60,000	60,000
Peak Average Rod Burnup (MWd/MTU)	62,500	62,500	62,500	62,500
Min Cool Time (years)	4	4	4	4
Min Average Enrichment (wt % ²³⁵ U)	0.7	0.7	0.7	0.7
Max Weight (lb) per Storage Location	704	704	704	704
Max Decay Heat (Watts) per Storage Location	379	379	379	379

- Each BWR fuel assembly may include a zirconium-based alloy channel.
- Assembly weight includes the weight of the channel.
- Maximum initial enrichment is the peak planar-average enrichment.
- Water rods may occupy more than one fuel lattice location. Fuel assembly to contain nominal number of water rods for the specific assembly design.
- All enrichment values are nominal preirradiation fabrication values.
- Spacers may be used to axially position fuel assemblies to facilitate handling.

⁽¹⁾ Assemblies may contain partial-length fuel rods.

Table B2-11 BWR SNF Assembly Loading Criteria

Assembly Type	Number of Fuel Rods	Number of Partial Length Rods ¹	Geometry ^{3,4}					Max Loading (MTU)
			Max Pitch (inch)	Min Clad OD (inch)	Min Clad Thick. (inch)	Max Pellet OD (inch)	Max Active Length (inch)	
B7_48A	48	N/A	0.7380	0.5700	0.03600	0.4900	144.0	0.1981
B7_49A	49	N/A	0.7380	0.5630	0.03200	0.4880	146.0	0.2034
B7_49B	49	N/A	0.7380	0.5630	0.03200	0.4910	150.0	0.2115
B8_59A	59	N/A	0.6400	0.4930	0.03400	0.4160	150.0	0.1828
B8_60A	60	N/A	0.6417	0.4840	0.03150	0.4110	150.0	0.1815
B8_60B	60	N/A	0.6400	0.4830	0.03000	0.4140	150.0	0.1841
B8_61B	61	N/A	0.6400	0.4830	0.03000	0.4140	150.0	0.1872
B8_62A	62	N/A	0.6417	0.4830	0.02900	0.4160	150.0	0.1921
B8_63A	63	N/A	0.6420	0.4840	0.02725	0.4195	150.0	0.1985
B8_64A	64	N/A	0.6420	0.4840	0.02725	0.4195	150.0	0.2017
B8_64B ⁵	64	N/A	0.6090	0.4576	0.02900	0.3913	150.0	0.1755
B9_72A	72	N/A	0.5720	0.4330	0.02600	0.3740	150.0	0.1803
B9_74A	74 ²	8	0.5720	0.4240	0.02390	0.3760	150.0	0.1873
B9_76A	76	N/A	0.5720	0.4170	0.02090	0.3750	150.0	0.1914
B9_79A	79	N/A	0.5720	0.4240	0.02390	0.3760	150.0	0.2000
B9_80A	80	N/A	0.5720	0.4230	0.02950	0.3565	150.0	0.1821
B10_91A	91 ²	8	0.5100	0.3957	0.02385	0.3420	150.0	0.1906
B10_92A	92 ²	14	0.5100	0.4040	0.02600	0.3455	150.0	0.1966
B10_96A ⁵	96 ²	12	0.4880	0.3780	0.02430	0.3224	150.0	0.1787
B10_100A ⁵	100	N/A	0.4880	0.3780	0.02430	0.3224	150.0	0.1861

¹ Location of the partial length rods is illustrated in Figure B2-6.

² Assemblies may contain partial-length fuel rods.

³ Assembly characteristics represent cold, unirradiated, nominal configurations.

⁴ Maximum channel thickness allowed is 120 mils (nominal).

⁵ Composed of four subchannel clusters.

Note: Amendment No. 2 removed the enrichment/soluble boron limits from this table. This information is now presented in Table B2-12.

**Table B2-12 BWR SNF Assembly Loading Criteria – Enrichment Limits
for 87-Assembly and 82-Assembly Configurations**

	Max. Initial Enrichment ^a (wt % ²³⁵ U)					
	Absorber ^b 0.027 ¹⁰ B g/cm ²		Absorber 0.0225 ¹⁰ B g/cm ²		Absorber 0.02 ¹⁰ B g/cm ²	
	87-Assy Basket	82-Assy Basket	87-Assy Basket	82-Assy Basket	87-Assy Basket	82-Assy Basket
B7_48A	4.0%	4.5%	3.7%	4.5%	3.6%	4.4%
B7_49A	3.8%	4.5%	3.6%	4.4%	3.5%	4.3%
B7_49B	3.8%	4.5%	3.6%	4.4%	3.5%	4.2%
B8_59A	3.9%	4.5%	3.7%	4.5%	3.6%	4.3%
B8_60A	3.8%	4.5%	3.7%	4.4%	3.5%	4.2%
B8_60B	3.8%	4.5%	3.6%	4.3%	3.5%	4.2%
B8_61B	3.8%	4.5%	3.6%	4.3%	3.5%	4.2%
B8_62A	3.8%	4.5%	3.6%	4.3%	3.5%	4.1%
B8_63A	3.8%	4.5%	3.6%	4.3%	3.4%	4.2%
B8_64A	3.8%	4.5%	3.6%	4.3%	3.5%	4.2%
B8_64B	3.6%	4.3%	3.4%	4.1%	3.3%	4.0%
B9_72A	3.8%	4.5%	3.6%	4.3%	3.4%	4.1%
B9_74A	3.7% ^c	4.3%	3.4%	4.1%	3.4%	4.0%
B9_76A	3.5%	4.2%	3.4%	4.0%	3.3%	3.9%
B9_79A	3.7%	4.4%	3.4%	4.2%	3.3%	4.0%
B9_80A	3.8%	4.5%	3.6%	4.3%	3.5%	4.2%
B10_91A	3.7%	4.5% ^d	3.6%	4.3%	3.5%	4.1%
B10_92A	3.8%	4.5% ^d	3.6%	4.3%	3.5%	4.1%
B10_96A	3.7%	4.3%	3.5%	4.1%	3.4%	4.0%
B10_100A	3.6%	4.4%	3.5%	4.1%	3.4%	4.0%

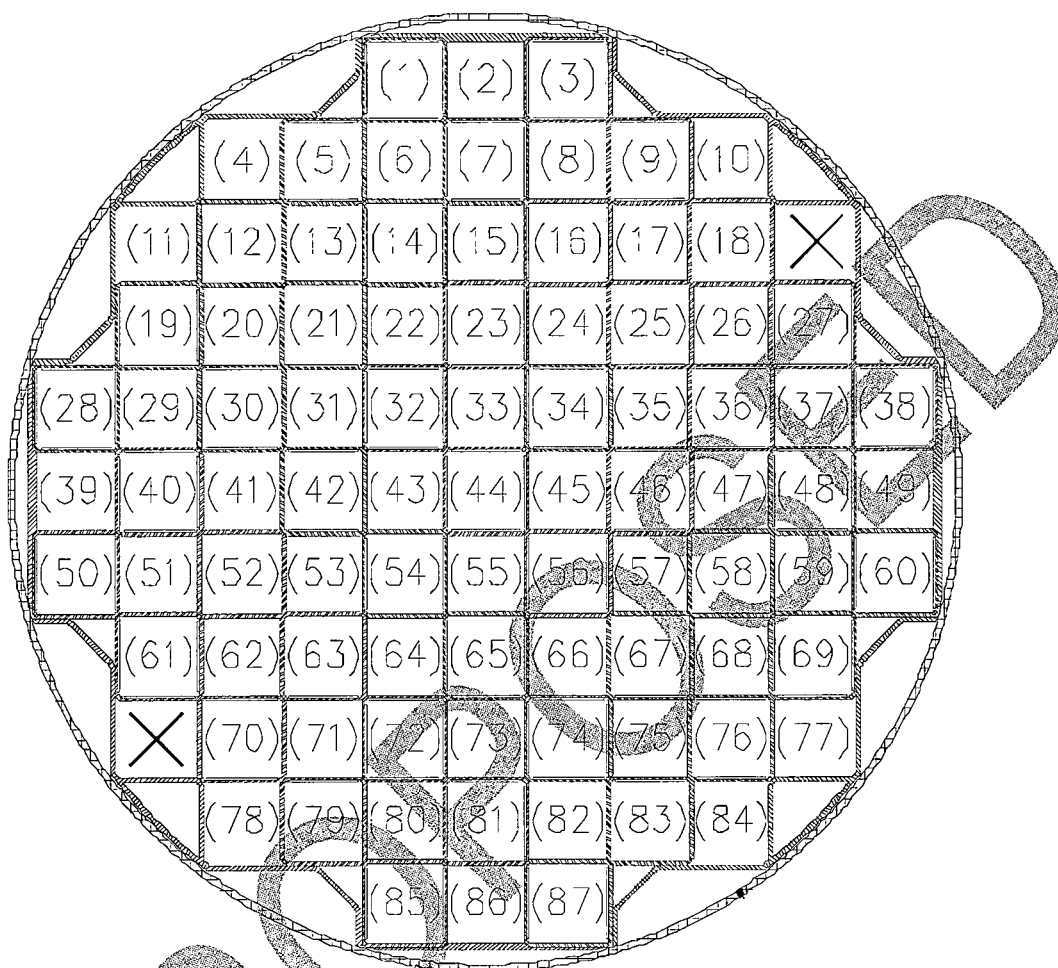
^a Maximum planar average.

^b Borated aluminum neutron absorber sheet effective areal ¹⁰B density.

^c 3.85% in the 86-assembly basket configuration

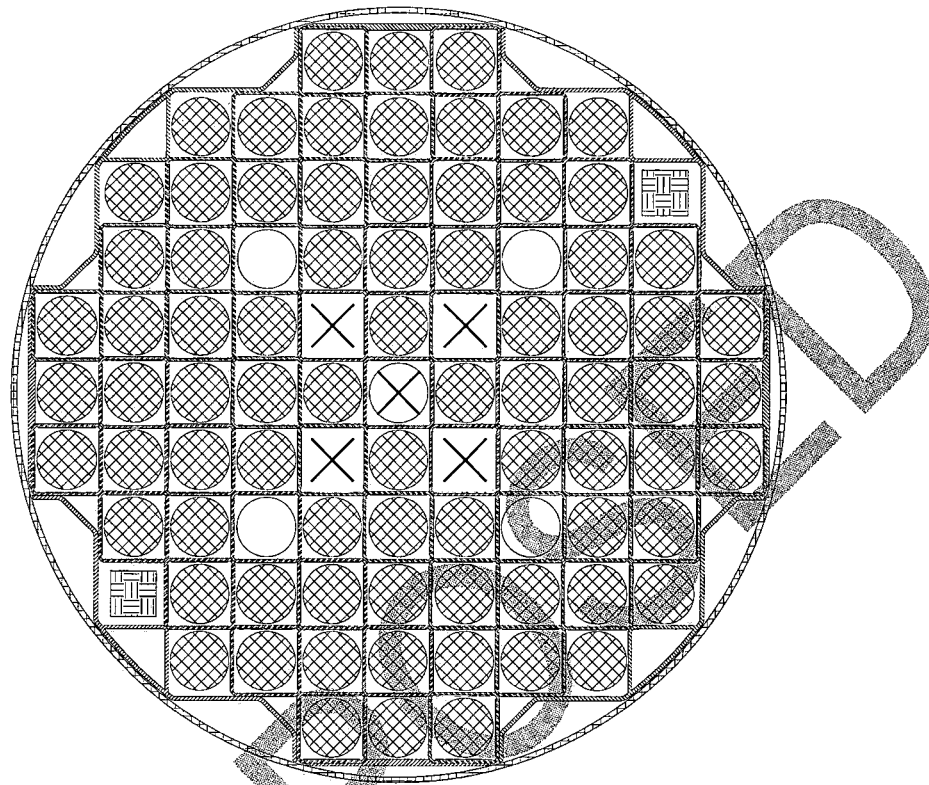
^d 4.55% in the alternate 82-assembly basket configuration

Figure B2-4 Schematic of 87-Assembly BWR Basket




Note – Cell location 44 must have an empty fuel cell insert installed in order to use the 86-assembly configuration.

Figure B2-5 Schematic of 82-Assembly BWR Basket



 = Fuel Assembly Locations

 = Vent/Drain Port Locations

 = Designated Nonfuel Locations for Standard 82-Assembly Config


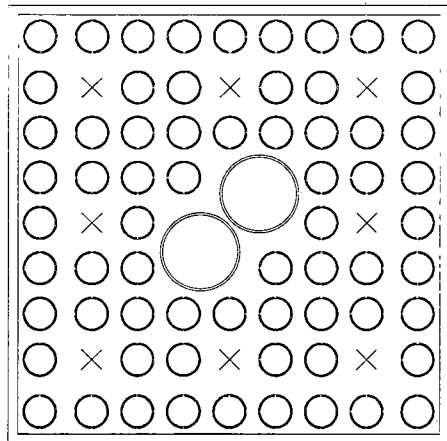
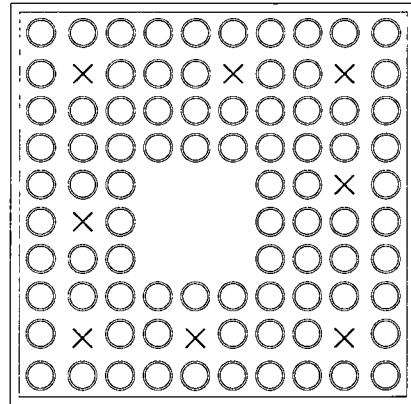
 = Designated Nonfuel Locations for Alternate 82-Assembly Config

Figure B2-6 BWR Partial Length Fuel Rod Location Sketches



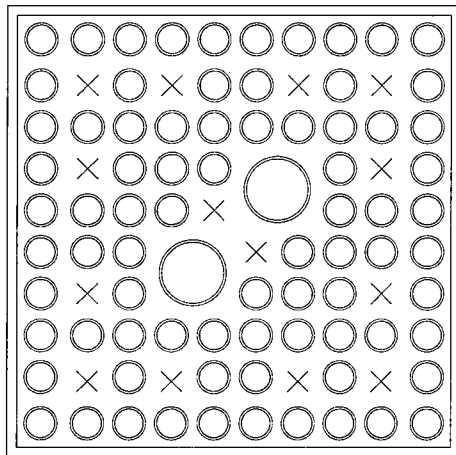
○ = Fuel Rod Location
 X = Partial Rod Location

B9_74A 8 Partial Length Rods



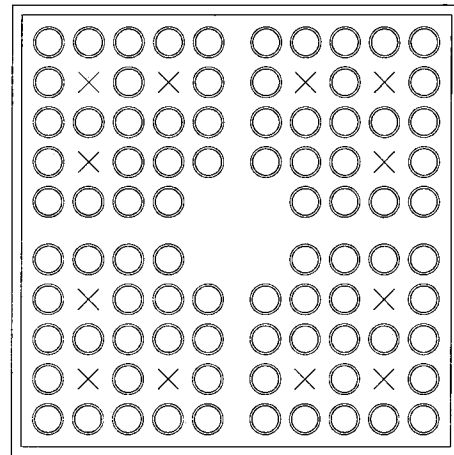
○ = Fuel Rod Location
 X = Partial Rod Location

B10_91A 8 Partial Length Rods



○ = Fuel Rod Location
 X = Partial Rod Location

B10_92A 14 Partial Length Rods



○ = Fuel Rod Location
 X = Partial Rod Location

B10_96A 12 Partial Length Rods

Table B2-13 PWR Loading Table – Low SNF Assembly Average Burnup Enrichment Limits

Max. Assembly Avg. Burnup (MWd/MTU)	Min. Assembly Avg. Initial Enrichment (wt% ²³⁵ U)	Minimum Cool Time (yrs)			
Heat Load per Assy	--	959 W	800 W	922 W	1,200 W
10,000	1.3	4.0	4.0	4.0	4.0
15,000	1.5	4.0	4.0	4.0	4.0
20,000	1.7	4.0	4.0	4.0	4.0
25,000	1.9	4.0	4.3	4.0	4.0
30,000	2.1	4.4	5.2	4.5	4.0

Table B2-14 BWR Loading Table – Low SNF Assembly Average Burnup Enrichment Limits

Max. Assembly Avg. Burnup (MWd/MTU)	Min. Assembly Avg. Initial Enrichment (wt% ²³⁵ U)	Minimum Cool Time (yrs)
5,000	0.7	4.0
10,000	1.3	4.0
15,000	1.5	4.0
20,000	1.7	4.0
25,000	1.9	4.0
30,000	2.1	4.3

Table B2-15 Loading Table for PWR Fuel – 959 W/Assembly

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	30 < Assembly Average Burnup ≤ 32.5 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	4.1	4.1	4.6	4.7	4.4	4.7	4.7
2.3 ≤ E < 2.5	4.0	4.1	4.5	4.7	4.4	4.6	4.6
2.5 ≤ E < 2.7	4.0	4.0	4.5	4.6	4.3	4.6	4.6
2.7 ≤ E < 2.9	4.0	4.0	4.5	4.5	4.3	4.5	4.5
2.9 ≤ E < 3.1	4.0	4.0	4.4	4.5	4.2	4.5	4.5
3.1 ≤ E < 3.3	4.0	4.0	4.4	4.5	4.2	4.5	4.5
3.3 ≤ E < 3.5	4.0	4.0	4.3	4.4	4.2	4.4	4.4
3.5 ≤ E < 3.7	4.0	4.0	4.3	4.4	4.1	4.4	4.4
3.7 ≤ E < 3.9	4.0	4.0	4.3	4.4	4.1	4.4	4.4
3.9 ≤ E < 4.1	4.0	4.0	4.2	4.3	4.0	4.3	4.3
4.1 ≤ E < 4.3	4.0	4.0	4.2	4.3	4.0	4.3	4.3
4.3 ≤ E < 4.5	4.0	4.0	4.2	4.3	4.0	4.3	4.3
4.5 ≤ E < 4.7	4.0	4.0	4.1	4.2	4.0	4.2	4.2
4.7 ≤ E < 4.9	4.0	4.0	4.1	4.2	4.0	4.2	4.2
E ≥ 4.9	4.0	4.0	4.1	4.2	4.0	4.2	4.2
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	32.5 < Assembly Average Burnup ≤ 35 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	4.3	4.4	5.0	5.1	4.7	5.0	5.0
2.5 ≤ E < 2.7	4.3	4.4	4.9	5.0	4.7	5.0	5.0
2.7 ≤ E < 2.9	4.2	4.3	4.8	5.0	4.6	4.9	4.9
2.9 ≤ E < 3.1	4.2	4.3	4.8	4.9	4.6	4.9	4.9
3.1 ≤ E < 3.3	4.1	4.2	4.7	4.9	4.5	4.8	4.8
3.3 ≤ E < 3.5	4.1	4.2	4.7	4.8	4.5	4.8	4.8
3.5 ≤ E < 3.7	4.1	4.1	4.6	4.8	4.4	4.7	4.7
3.7 ≤ E < 3.9	4.0	4.1	4.6	4.7	4.4	4.7	4.7
3.9 ≤ E < 4.1	4.0	4.1	4.6	4.7	4.4	4.7	4.7
4.1 ≤ E < 4.3	4.0	4.0	4.5	4.7	4.3	4.6	4.6
4.3 ≤ E < 4.5	4.0	4.0	4.5	4.6	4.3	4.6	4.6
4.5 ≤ E < 4.7	4.0	4.0	4.5	4.6	4.3	4.6	4.6
4.7 ≤ E < 4.9	4.0	4.0	4.4	4.6	4.3	4.5	4.5
E ≥ 4.9	4.0	4.0	4.4	4.5	4.2	4.5	4.5

Table B2-15 Loading Table for PWR Fuel – 959 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	35 < Assembly Average Burnup ≤ 37.5 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	4.7	4.8	5.5	5.7	5.2	5.6	5.6
2.5 ≤ E < 2.7	4.6	4.7	5.4	5.6	5.1	5.5	5.5
2.7 ≤ E < 2.9	4.6	4.7	5.3	5.5	5.0	5.4	5.4
2.9 ≤ E < 3.1	4.5	4.6	5.3	5.4	5.0	5.4	5.4
3.1 ≤ E < 3.3	4.5	4.5	5.2	5.4	4.9	5.3	5.3
3.3 ≤ E < 3.5	4.4	4.5	5.1	5.3	4.9	5.2	5.2
3.5 ≤ E < 3.7	4.4	4.5	5.0	5.2	4.8	5.2	5.2
3.7 ≤ E < 3.9	4.3	4.4	5.0	5.2	4.8	5.1	5.1
3.9 ≤ E < 4.1	4.3	4.4	5.0	5.1	4.7	5.1	5.1
4.1 ≤ E < 4.3	4.3	4.4	4.9	5.1	4.7	5.0	5.0
4.3 ≤ E < 4.5	4.2	4.3	4.9	5.0	4.7	5.0	5.0
4.5 ≤ E < 4.7	4.2	4.3	4.9	5.0	4.6	5.0	5.0
4.7 ≤ E < 4.9	4.2	4.3	4.8	5.0	4.6	4.9	4.9
E ≥ 4.9	4.1	4.2	4.8	4.9	4.5	4.9	4.9
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	37.5 < Assembly Average Burnup ≤ 40 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	5.0	5.2	5.9	6.1	5.6	6.0	6.0
2.7 ≤ E < 2.9	5.0	5.1	5.9	6.0	5.5	5.9	5.9
2.9 ≤ E < 3.1	4.9	5.0	5.8	6.0	5.5	5.9	5.9
3.1 ≤ E < 3.3	4.9	4.9	5.7	5.9	5.4	5.8	5.8
3.3 ≤ E < 3.5	4.8	4.9	5.7	5.8	5.3	5.7	5.7
3.5 ≤ E < 3.7	4.7	4.8	5.6	5.8	5.2	5.7	5.7
3.7 ≤ E < 3.9	4.7	4.8	5.5	5.7	5.2	5.6	5.6
3.9 ≤ E < 4.1	4.6	4.8	5.5	5.7	5.1	5.6	5.6
4.1 ≤ E < 4.3	4.6	4.7	5.4	5.6	5.1	5.5	5.5
4.3 ≤ E < 4.5	4.5	4.7	5.4	5.6	5.0	5.5	5.5
4.5 ≤ E < 4.7	4.5	4.6	5.3	5.5	5.0	5.4	5.4
4.7 ≤ E < 4.9	4.5	4.6	5.3	5.5	5.0	5.4	5.4
E ≥ 4.9	4.5	4.5	5.2	5.4	4.9	5.4	5.4

Table B2-15 Loading Table for PWR Fuel – 959 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	40 < Assembly Average Burnup ≤ 41 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	5.3	5.4	6.2	6.4	5.8	6.3	6.3
2.7 ≤ E < 2.9	5.2	5.3	6.1	6.3	5.7	6.2	6.2
2.9 ≤ E < 3.1	5.1	5.2	6.0	6.2	5.7	6.1	6.1
3.1 ≤ E < 3.3	5.0	5.1	5.9	6.1	5.6	6.0	6.0
3.3 ≤ E < 3.5	4.9	5.1	5.9	6.0	5.5	5.9	5.9
3.5 ≤ E < 3.7	4.9	5.0	5.8	6.0	5.5	5.9	5.9
3.7 ≤ E < 3.9	4.8	4.9	5.7	5.9	5.4	5.8	5.8
3.9 ≤ E < 4.1	4.8	4.9	5.7	5.9	5.3	5.8	5.8
4.1 ≤ E < 4.3	4.7	4.9	5.6	5.8	5.3	5.7	5.7
4.3 ≤ E < 4.5	4.7	4.8	5.6	5.8	5.2	5.7	5.7
4.5 ≤ E < 4.7	4.7	4.8	5.5	5.7	5.2	5.6	5.6
4.7 ≤ E < 4.9	4.6	4.7	5.5	5.7	5.1	5.6	5.6
E ≥ 4.9	4.6	4.7	5.5	5.6	5.1	5.6	5.6
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	41 < Assembly Average Burnup ≤ 42 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	5.5	5.6	6.5	6.7	6.0	6.6	6.6
2.7 ≤ E < 2.9	5.4	5.5	6.4	6.6	5.9	6.5	6.5
2.9 ≤ E < 3.1	5.3	5.4	6.3	6.5	5.9	6.4	6.4
3.1 ≤ E < 3.3	5.2	5.3	6.2	6.4	5.8	6.3	6.3
3.3 ≤ E < 3.5	5.1	5.3	6.1	6.3	5.7	6.2	6.2
3.5 ≤ E < 3.7	5.0	5.2	6.0	6.2	5.7	6.1	6.1
3.7 ≤ E < 3.9	5.0	5.1	5.9	6.2	5.6	6.0	6.0
3.9 ≤ E < 4.1	4.9	5.1	5.9	6.1	5.5	6.0	6.0
4.1 ≤ E < 4.3	4.9	5.0	5.8	6.0	5.5	5.9	5.9
4.3 ≤ E < 4.5	4.9	5.0	5.8	6.0	5.4	5.9	5.9
4.5 ≤ E < 4.7	4.8	4.9	5.7	5.9	5.4	5.8	5.8
4.7 ≤ E < 4.9	4.8	4.9	5.7	5.9	5.3	5.8	5.8
E ≥ 4.9	4.7	4.9	5.7	5.9	5.3	5.8	5.8

Table B2-15 Loading Table for PWR Fuel – 959 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	42 < Assembly Average Burnup ≤ 43 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	5.7	5.8	6.8	7.0	6.3	6.9	6.9
2.7 ≤ E < 2.9	5.6	5.7	6.7	6.9	6.2	6.8	6.8
2.9 ≤ E < 3.1	5.5	5.6	6.6	6.8	6.0	6.7	6.7
3.1 ≤ E < 3.3	5.4	5.6	6.5	6.7	6.0	6.6	6.6
3.3 ≤ E < 3.5	5.3	5.5	6.4	6.6	5.9	6.5	6.5
3.5 ≤ E < 3.7	5.3	5.4	6.3	6.5	5.9	6.4	6.4
3.7 ≤ E < 3.9	5.2	5.3	6.2	6.5	5.8	6.3	6.3
3.9 ≤ E < 4.1	5.1	5.3	6.1	6.4	5.7	6.2	6.2
4.1 ≤ E < 4.3	5.0	5.2	6.0	6.3	5.7	6.2	6.1
4.3 ≤ E < 4.5	5.0	5.2	6.0	6.2	5.6	6.1	6.1
4.5 ≤ E < 4.7	5.0	5.1	5.9	6.2	5.6	6.0	6.0
4.7 ≤ E < 4.9	4.9	5.0	5.9	6.1	5.5	6.0	6.0
E ≥ 4.9	4.9	5.0	5.8	6.0	5.5	6.0	5.9

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	43 < Assembly Average Burnup ≤ 44 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	5.9	6.0	7.1	7.4	6.6	7.2	7.2
2.7 ≤ E < 2.9	5.8	5.9	7.0	7.3	6.5	7.0	7.0
2.9 ≤ E < 3.1	5.7	5.8	6.9	7.1	6.4	6.9	6.9
3.1 ≤ E < 3.3	5.6	5.8	6.8	7.0	6.2	6.8	6.8
3.3 ≤ E < 3.5	5.5	5.7	6.7	6.9	6.1	6.8	6.7
3.5 ≤ E < 3.7	5.5	5.6	6.6	6.8	6.0	6.7	6.7
3.7 ≤ E < 3.9	5.4	5.6	6.5	6.8	6.0	6.6	6.6
3.9 ≤ E < 4.1	5.3	5.5	6.4	6.7	5.9	6.5	6.5
4.1 ≤ E < 4.3	5.3	5.4	6.3	6.6	5.9	6.4	6.4
4.3 ≤ E < 4.5	5.2	5.4	6.2	6.5	5.8	6.4	6.4
4.5 ≤ E < 4.7	5.1	5.3	6.2	6.5	5.8	6.3	6.3
4.7 ≤ E < 4.9	5.1	5.3	6.1	6.4	5.7	6.2	6.2
E ≥ 4.9	5.0	5.2	6.0	6.3	5.7	6.2	6.2

Table B2-15 Loading Table for PWR Fuel – 959 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	44 < Assembly Average Burnup ≤ 45 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	6.0	6.2	7.3	7.7	6.7	7.4	7.4
2.9 ≤ E < 3.1	5.9	6.0	7.2	7.6	6.6	7.3	7.3
3.1 ≤ E < 3.3	5.8	6.0	7.0	7.4	6.5	7.2	7.1
3.3 ≤ E < 3.5	5.7	5.9	6.9	7.3	6.4	7.0	7.0
3.5 ≤ E < 3.7	5.7	5.8	6.8	7.2	6.3	6.9	6.9
3.7 ≤ E < 3.9	5.6	5.8	6.8	7.0	6.2	6.9	6.9
3.9 ≤ E < 4.1	5.5	5.7	6.7	7.0	6.2	6.8	6.8
4.1 ≤ E < 4.3	5.5	5.6	6.6	6.9	6.1	6.7	6.7
4.3 ≤ E < 4.5	5.4	5.6	6.5	6.8	6.0	6.7	6.6
4.5 ≤ E < 4.7	5.3	5.5	6.5	6.7	6.0	6.6	6.6
4.7 ≤ E < 4.9	5.3	5.5	6.4	6.7	5.9	6.5	6.5
E ≥ 4.9	5.2	5.4	6.3	6.6	5.9	6.5	6.5

Note: For fuel assembly average burnup greater than 45 GWd/MTU, cool time tables have been revised to account for a 5% margin in heat load.

Table B2-16 Loading Table for PWR Fuel – 911 W/Assembly

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	45 < Assembly Average Burnup ≤ 46 GWd/MTU Minimum Cooling Time (years)						
	CE	WE	WE	B&W	CE	WE	B&W
	14×14	14×14	15×15	15×15	16×16	17×17	17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	6.7	6.9	8.5	9.0	7.7	8.6	8.6
2.9 ≤ E < 3.1	6.6	6.8	8.3	8.8	7.5	8.4	8.4
3.1 ≤ E < 3.3	6.5	6.7	8.1	8.6	7.4	8.2	8.2
3.3 ≤ E < 3.5	6.4	6.6	8.0	8.5	7.3	8.1	8.1
3.5 ≤ E < 3.7	6.3	6.5	7.8	8.3	7.1	8.0	7.9
3.7 ≤ E < 3.9	6.2	6.4	7.7	8.2	7.0	7.8	7.8
3.9 ≤ E < 4.1	6.1	6.3	7.6	8.0	6.9	7.7	7.7
4.1 ≤ E < 4.3	6.0	6.2	7.5	7.9	6.9	7.7	7.6
4.3 ≤ E < 4.5	6.0	6.2	7.4	7.8	6.8	7.6	7.6
4.5 ≤ E < 4.7	5.9	6.1	7.3	7.8	6.7	7.5	7.5
4.7 ≤ E < 4.9	5.9	6.0	7.2	7.7	6.7	7.4	7.4
E ≥ 4.9	5.8	6.0	7.2	7.6	6.6	7.3	7.3

Table B2-16 Loading Table for PWR Fuel – 911 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	46 < Assembly Average Burnup ≤ 47 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	7.0	7.3	9.0	9.6	8.0	9.1	9.1
2.9 ≤ E < 3.1	6.9	7.1	8.8	9.4	7.9	8.9	8.9
3.1 ≤ E < 3.3	6.8	7.0	8.6	9.2	7.8	8.7	8.7
3.3 ≤ E < 3.5	6.7	6.9	8.4	9.0	7.6	8.6	8.6
3.5 ≤ E < 3.7	6.6	6.8	8.3	8.8	7.5	8.4	8.4
3.7 ≤ E < 3.9	6.5	6.7	8.1	8.7	7.4	8.3	8.3
3.9 ≤ E < 4.1	6.4	6.6	8.0	8.5	7.3	8.1	8.1
4.1 ≤ E < 4.3	6.3	6.5	7.9	8.4	7.2	8.0	8.0
4.3 ≤ E < 4.5	6.2	6.5	7.8	8.3	7.1	7.9	7.9
4.5 ≤ E < 4.7	6.1	6.4	7.7	8.2	7.0	7.9	7.8
4.7 ≤ E < 4.9	6.0	6.3	7.6	8.1	6.9	7.8	7.8
E ≥ 4.9	6.0	6.2	7.6	8.0	6.9	7.7	7.7

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	47 < Assembly Average Burnup ≤ 48 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	7.4	7.7	9.6	10.3	8.6	9.7	9.7
2.9 ≤ E < 3.1	7.2	7.6	9.4	10.0	8.4	9.5	9.5
3.1 ≤ E < 3.3	7.1	7.4	9.1	9.8	8.2	9.3	9.3
3.3 ≤ E < 3.5	7.0	7.2	8.9	9.6	8.0	9.1	9.0
3.5 ≤ E < 3.7	6.9	7.1	8.8	9.4	7.9	8.9	8.9
3.7 ≤ E < 3.9	6.7	7.0	8.6	9.2	7.8	8.8	8.7
3.9 ≤ E < 4.1	6.7	6.9	8.5	9.0	7.6	8.6	8.6
4.1 ≤ E < 4.3	6.6	6.8	8.4	8.9	7.6	8.5	8.5
4.3 ≤ E < 4.5	6.5	6.7	8.2	8.8	7.4	8.4	8.4
4.5 ≤ E < 4.7	6.4	6.7	8.1	8.7	7.4	8.3	8.3
4.7 ≤ E < 4.9	6.3	6.6	8.0	8.6	7.3	8.2	8.2
E ≥ 4.9	6.2	6.5	7.9	8.5	7.2	8.1	8.1

Table B2-16 Loading Table for PWR Fuel – 911 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	48 < Assembly Average Burnup ≤ 49 GWd/MTU Minimum Cooling Time (years)						
	CE	WE	WE	B&W	CE	WE	B&W
	14×14	14×14	15×15	15×15	16×16	17×17	17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	7.8	8.1	10.2	11.1	9.0	10.4	10.4
2.9 ≤ E < 3.1	7.6	7.9	10.0	10.8	8.8	10.1	10.1
3.1 ≤ E < 3.3	7.5	7.8	9.7	10.5	8.6	9.9	9.8
3.3 ≤ E < 3.5	7.3	7.6	9.5	10.2	8.5	9.7	9.6
3.5 ≤ E < 3.7	7.2	7.5	9.3	10.0	8.3	9.5	9.4
3.7 ≤ E < 3.9	7.0	7.4	9.1	9.8	8.2	9.3	9.3
3.9 ≤ E < 4.1	6.9	7.2	9.0	9.6	8.0	9.1	9.1
4.1 ≤ E < 4.3	6.8	7.1	8.8	9.5	7.9	9.0	9.0
4.3 ≤ E < 4.5	6.8	7.0	8.7	9.3	7.8	8.9	8.9
4.5 ≤ E < 4.7	6.7	6.9	8.6	9.2	7.7	8.8	8.7
4.7 ≤ E < 4.9	6.6	6.9	8.5	9.1	7.6	8.7	8.6
E ≥ 4.9	6.5	6.8	8.4	9.0	7.6	8.6	8.5

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	49 < Assembly Average Burnup ≤ 50 GWd/MTU Minimum Cooling Time (years)						
	CE	WE	WE	B&W	CE	WE	B&W
	14×14	14×14	15×15	15×15	16×16	17×17	17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	8.0	8.3	10.7	11.6	9.4	10.9	10.9
3.1 ≤ E < 3.3	7.8	8.1	10.4	11.3	9.1	10.6	10.6
3.3 ≤ E < 3.5	7.7	7.9	10.1	11.0	9.0	10.3	10.3
3.5 ≤ E < 3.7	7.5	7.8	9.9	10.8	8.8	10.0	10.0
3.7 ≤ E < 3.9	7.4	7.6	9.7	10.5	8.6	9.9	9.9
3.9 ≤ E < 4.1	7.3	7.5	9.5	10.3	8.5	9.7	9.7
4.1 ≤ E < 4.3	7.1	7.4	9.4	10.1	8.3	9.6	9.5
4.3 ≤ E < 4.5	7.0	7.3	9.2	9.9	8.2	9.4	9.4
4.5 ≤ E < 4.7	6.9	7.2	9.1	9.8	8.1	9.3	9.2
4.7 ≤ E < 4.9	6.9	7.1	9.0	9.6	8.0	9.1	9.1
E ≥ 4.9	6.8	7.0	8.9	9.5	7.9	9.0	9.0

Table B2-16 Loading Table for PWR Fuel – 911 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	50 < Assembly Average Burnup ≤ 51 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	8.3	8.7	11.5	12.3	10.0	11.6	11.6
3.1 ≤ E < 3.3	8.0	8.5	11.2	12.0	9.8	11.3	11.3
3.3 ≤ E < 3.5	7.9	8.3	10.9	11.7	9.5	11.1	11.1
3.5 ≤ E < 3.7	7.8	8.1	10.6	11.5	9.3	10.8	10.8
3.7 ≤ E < 3.9	7.6	8.0	10.4	11.3	9.1	10.6	10.6
3.9 ≤ E < 4.1	7.5	7.9	10.1	11.1	9.0	10.4	10.4
4.1 ≤ E < 4.3	7.4	7.8	10.0	10.9	8.8	10.2	10.1
4.3 ≤ E < 4.5	7.3	7.6	9.8	10.6	8.7	10.0	10.0
4.5 ≤ E < 4.7	7.1	7.5	9.7	10.5	8.6	9.8	9.8
4.7 ≤ E < 4.9	7.0	7.4	9.5	10.3	8.5	9.7	9.7
E ≥ 4.9	7.0	7.3	9.4	10.1	8.3	9.6	9.6

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	51 < Assembly Average Burnup ≤ 52 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	8.8	9.3	12.2	13.0	10.7	12.4	12.4
3.1 ≤ E < 3.3	8.5	9.0	11.9	12.6	10.4	12.1	12.0
3.3 ≤ E < 3.5	8.3	8.8	11.6	12.3	10.1	11.8	11.8
3.5 ≤ E < 3.7	8.1	8.6	11.4	11.9	9.9	11.6	11.5
3.7 ≤ E < 3.9	8.0	8.5	11.1	11.7	9.7	11.3	11.3
3.9 ≤ E < 4.1	7.9	8.3	10.9	11.5	9.5	11.1	11.1
4.1 ≤ E < 4.3	7.7	8.1	10.7	11.3	9.3	10.9	10.9
4.3 ≤ E < 4.5	7.6	8.0	10.5	11.1	9.2	10.7	10.7
4.5 ≤ E < 4.7	7.5	7.9	10.3	11.0	9.0	10.5	10.5
4.7 ≤ E < 4.9	7.4	7.8	10.1	10.8	8.9	10.3	10.3
E ≥ 4.9	7.3	7.7	10.0	10.6	8.8	10.2	10.2

Table B2-16 Loading Table for PWR Fuel – 911 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	52 < Assembly Average Burnup ≤ 53 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	9.3	9.8	12.8	13.8	11.4	13.3	13.3
3.1 ≤ E < 3.3	9.0	9.6	12.4	13.5	11.2	13.0	13.0
3.3 ≤ E < 3.5	8.8	9.3	12.1	13.2	10.9	12.6	12.6
3.5 ≤ E < 3.7	8.6	9.1	11.8	12.8	10.6	12.3	12.3
3.7 ≤ E < 3.9	8.4	9.0	11.5	12.6	10.3	12.0	12.0
3.9 ≤ E < 4.1	8.2	8.8	11.3	12.3	10.1	11.8	11.8
4.1 ≤ E < 4.3	8.1	8.6	11.1	12.0	9.9	11.6	11.6
4.3 ≤ E < 4.5	8.0	8.5	10.9	11.8	9.7	11.4	11.4
4.5 ≤ E < 4.7	7.9	8.3	10.7	11.7	9.6	11.2	11.2
4.7 ≤ E < 4.9	7.8	8.2	10.6	11.5	9.4	11.1	11.0
E ≥ 4.9	7.7	8.1	10.4	11.3	9.3	10.9	10.9
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	53 < Assembly Average Burnup ≤ 54 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	9.8	10.5	13.6	14.9	12.2	14.2	14.2
3.1 ≤ E < 3.3	9.6	10.2	13.3	14.4	11.8	13.8	13.8
3.3 ≤ E < 3.5	9.3	9.9	12.9	14.0	11.6	13.5	13.5
3.5 ≤ E < 3.7	9.1	9.7	12.6	13.7	11.3	13.2	13.2
3.7 ≤ E < 3.9	8.9	9.5	12.3	13.4	11.0	12.9	12.9
3.9 ≤ E < 4.1	8.7	9.3	12.0	13.2	10.8	12.6	12.6
4.1 ≤ E < 4.3	8.6	9.1	11.8	12.9	10.6	12.4	12.4
4.3 ≤ E < 4.5	8.4	8.9	11.6	12.6	10.4	12.1	12.1
4.5 ≤ E < 4.7	8.3	8.8	11.4	12.4	10.1	11.9	11.9
4.7 ≤ E < 4.9	8.1	8.7	11.3	12.2	10.0	11.8	11.7
E ≥ 4.9	8.0	8.8	11.1	12.0	9.9	11.6	11.6

Table B2-16 Loading Table for PWR Fuel – 911 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	54 < Assembly Average Burnup ≤ 55 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	10.1	10.9	14.1	15.4	12.7	14.8	14.8
3.3 ≤ E < 3.5	9.9	10.6	13.8	15.0	12.3	14.4	14.4
3.5 ≤ E < 3.7	9.6	10.3	13.5	14.7	12.0	14.0	14.0
3.7 ≤ E < 3.9	9.4	10.1	13.1	14.3	11.8	13.8	13.8
3.9 ≤ E < 4.1	9.2	9.8	12.9	14.0	11.5	13.5	13.5
4.1 ≤ E < 4.3	9.0	9.7	12.6	13.8	11.3	13.3	13.2
4.3 ≤ E < 4.5	8.9	9.5	12.3	13.5	11.1	13.0	13.0
4.5 ≤ E < 4.7	8.7	9.3	12.1	13.3	10.9	12.8	12.7
4.7 ≤ E < 4.9	8.6	9.1	11.9	13.1	10.7	12.6	12.5
E ≥ 4.9	8.5	9.0	11.7	12.9	10.5	12.3	12.3
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	55 < Assembly Average Burnup ≤ 56 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	10.9	11.6	15.1	16.5	13.1	15.8	15.8
3.3 ≤ E < 3.5	10.5	11.3	14.7	16.0	12.8	15.4	15.4
3.5 ≤ E < 3.7	10.2	11.0	14.3	15.7	12.4	15.1	15.0
3.7 ≤ E < 3.9	9.9	10.8	14.0	15.3	12.1	14.7	14.7
3.9 ≤ E < 4.1	9.7	10.5	13.7	15.0	11.9	14.4	14.4
4.1 ≤ E < 4.3	9.5	10.2	13.4	14.7	11.7	14.1	14.1
4.3 ≤ E < 4.5	9.3	10.0	13.2	14.5	11.4	13.8	13.8
4.5 ≤ E < 4.7	9.2	9.9	12.9	14.2	11.2	13.6	13.6
4.7 ≤ E < 4.9	9.0	9.7	12.7	13.9	11.1	13.4	13.4
E ≥ 4.9	8.9	9.5	12.5	13.8	10.9	13.2	13.2

Table B2-16 Loading Table for PWR Fuel – 911 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	56 < Assembly Average Burnup ≤ 57 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	11.5	12.3	16.0	17.4	14.0	16.8	16.8
3.3 ≤ E < 3.5	11.2	12.0	15.6	17.1	13.6	16.4	16.4
3.5 ≤ E < 3.7	10.9	11.7	15.3	16.7	13.3	16.0	16.0
3.7 ≤ E < 3.9	10.6	11.4	14.9	16.3	13.0	15.7	15.6
3.9 ≤ E < 4.1	10.3	11.2	14.6	16.0	12.6	15.4	15.3
4.1 ≤ E < 4.3	10.1	10.9	14.2	15.7	12.4	15.1	15.1
4.3 ≤ E < 4.5	9.9	10.7	14.0	15.4	12.1	14.8	14.8
4.5 ≤ E < 4.7	9.7	10.5	13.8	15.2	11.9	14.5	14.5
4.7 ≤ E < 4.9	9.5	10.3	13.6	14.9	11.7	14.2	14.2
E ≥ 4.9	9.4	10.1	13.4	14.7	11.5	14.0	14.0

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	57 < Assembly Average Burnup ≤ 58 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	12.2	13.2	17.0	18.5	14.9	17.8	17.7
3.3 ≤ E < 3.5	11.9	12.8	16.7	18.1	14.5	17.4	17.4
3.5 ≤ E < 3.7	11.6	12.4	16.2	17.7	14.1	17.0	17.0
3.7 ≤ E < 3.9	11.3	12.1	15.9	17.3	13.8	16.7	16.6
3.9 ≤ E < 4.1	11.0	11.9	15.6	17.0	13.5	16.3	16.3
4.1 ≤ E < 4.3	10.7	11.6	15.3	16.7	13.2	16.0	16.0
4.3 ≤ E < 4.5	10.5	11.4	15.0	16.4	12.9	15.7	15.7
4.5 ≤ E < 4.7	10.3	11.2	14.7	16.1	12.7	15.5	15.4
4.7 ≤ E < 4.9	10.0	10.9	14.4	15.8	12.4	15.2	15.2
E ≥ 4.9	9.9	10.8	14.2	15.6	12.2	15.0	14.9

Table B2-16 Loading Table for PWR Fuel – 911 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	58 < Assembly Average Burnup ≤ 59 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	13.0	14.0	18.0	19.5	15.8	18.8	18.8
3.3 ≤ E < 3.5	12.6	13.6	17.6	19.1	15.4	18.4	18.4
3.5 ≤ E < 3.7	12.2	13.3	17.2	18.7	15.0	18.0	18.0
3.7 ≤ E < 3.9	11.9	12.9	16.9	18.3	14.6	17.7	17.7
3.9 ≤ E < 4.1	11.6	12.6	16.5	18.0	14.3	17.4	17.3
4.1 ≤ E < 4.3	11.4	12.3	16.2	17.7	14.0	17.0	17.0
4.3 ≤ E < 4.5	11.1	12.0	15.9	17.4	13.7	16.7	16.7
4.5 ≤ E < 4.7	10.9	11.8	15.6	17.1	13.5	16.4	16.4
4.7 ≤ E < 4.9	10.7	11.6	15.4	16.8	13.2	16.1	16.1
E ≥ 4.9	10.5	11.4	15.1	16.6	13.0	15.9	15.9
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	59 < Assembly Average Burnup ≤ 60 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	-	-	-	-	-	-	-
3.3 ≤ E < 3.5	13.4	14.4	18.6	20.1	16.3	19.0	19.0
3.5 ≤ E < 3.7	13.0	14.1	18.2	19.7	15.9	18.6	18.5
3.7 ≤ E < 3.9	12.7	13.7	17.8	19.4	15.5	18.2	18.1
3.9 ≤ E < 4.1	12.3	13.4	17.5	19.0	15.2	17.9	17.8
4.1 ≤ E < 4.3	12.0	13.1	17.1	18.7	14.9	17.5	17.5
4.3 ≤ E < 4.5	11.8	12.8	16.8	18.4	14.6	17.2	17.2
4.5 ≤ E < 4.7	11.6	12.6	16.5	18.0	14.3	16.9	16.9
4.7 ≤ E < 4.9	11.3	12.3	16.2	17.8	14.0	16.6	16.6
E ≥ 4.9	11.2	12.1	16.0	17.6	13.8	16.4	16.3

Table B2-17 Loading Table for PWR Fuel – 1,200 W/Assembly

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	30 < Assembly Average Burnup ≤ 32.5 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0
2.3 ≤ E < 2.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
2.5 ≤ E < 2.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0
2.7 ≤ E < 2.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0
2.9 ≤ E < 3.1	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3.1 ≤ E < 3.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3.3 ≤ E < 3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3.5 ≤ E < 3.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3.7 ≤ E < 3.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3.9 ≤ E < 4.1	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4.1 ≤ E < 4.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4.3 ≤ E < 4.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4.5 ≤ E < 4.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4.7 ≤ E < 4.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0
E ≥ 4.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	32.5 < Assembly Average Burnup ≤ 35 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	4.0	4.0	4.0	4.1	4.0	4.1	4.1
2.5 ≤ E < 2.7	4.0	4.0	4.0	4.1	4.0	4.0	4.0
2.7 ≤ E < 2.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0
2.9 ≤ E < 3.1	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3.1 ≤ E < 3.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3.3 ≤ E < 3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3.5 ≤ E < 3.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3.7 ≤ E < 3.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3.9 ≤ E < 4.1	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4.1 ≤ E < 4.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4.3 ≤ E < 4.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4.5 ≤ E < 4.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4.7 ≤ E < 4.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0
E ≥ 4.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0

Table B2-17 Loading Table for PWR Fuel – 1,200 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	35 < Assembly Average Burnup ≤ 37.5 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	4.0	4.0	4.3	4.4	4.2	4.4	4.4
2.5 ≤ E < 2.7	4.0	4.0	4.3	4.4	4.1	4.4	4.4
2.7 ≤ E < 2.9	4.0	4.0	4.2	4.3	4.1	4.3	4.3
2.9 ≤ E < 3.1	4.0	4.0	4.2	4.3	4.0	4.3	4.3
3.1 ≤ E < 3.3	4.0	4.0	4.1	4.2	4.0	4.2	4.2
3.3 ≤ E < 3.5	4.0	4.0	4.1	4.2	4.0	4.2	4.2
3.5 ≤ E < 3.7	4.0	4.0	4.0	4.2	4.0	4.2	4.2
3.7 ≤ E < 3.9	4.0	4.0	4.0	4.1	4.0	4.1	4.1
3.9 ≤ E < 4.1	4.0	4.0	4.0	4.1	4.0	4.1	4.1
4.1 ≤ E < 4.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4.3 ≤ E < 4.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4.5 ≤ E < 4.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4.7 ≤ E < 4.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0
E ≥ 4.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	37.5 < Assembly Average Burnup ≤ 40 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	4.0	4.1	4.6	4.8	4.4	4.7	4.7
2.7 ≤ E < 2.9	4.0	4.0	4.6	4.7	4.4	4.7	4.7
2.9 ≤ E < 3.1	4.0	4.0	4.5	4.6	4.3	4.6	4.6
3.1 ≤ E < 3.3	4.0	4.0	4.5	4.6	4.3	4.5	4.5
3.3 ≤ E < 3.5	4.0	4.0	4.4	4.5	4.2	4.5	4.5
3.5 ≤ E < 3.7	4.0	4.0	4.4	4.5	4.2	4.5	4.4
3.7 ≤ E < 3.9	4.0	4.0	4.3	4.4	4.1	4.4	4.4
3.9 ≤ E < 4.1	4.0	4.0	4.3	4.4	4.1	4.4	4.4
4.1 ≤ E < 4.3	4.0	4.0	4.2	4.3	4.1	4.3	4.3
4.3 ≤ E < 4.5	4.0	4.0	4.2	4.3	4.0	4.3	4.3
4.5 ≤ E < 4.7	4.0	4.0	4.2	4.3	4.0	4.3	4.3
4.7 ≤ E < 4.9	4.0	4.0	4.1	4.3	4.0	4.3	4.3
E ≥ 4.9	4.0	4.0	4.1	4.2	4.0	4.2	4.2

Table B2-17 Loading Table for PWR Fuel – 1,200 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	40 < Assembly Average Burnup ≤ 41 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	4.2	4.2	4.8	4.9	4.5	4.9	4.9
2.7 ≤ E < 2.9	4.1	4.2	4.7	4.8	4.5	4.8	4.8
2.9 ≤ E < 3.1	4.0	4.1	4.7	4.8	4.4	4.8	4.7
3.1 ≤ E < 3.3	4.0	4.1	4.6	4.7	4.4	4.7	4.7
3.3 ≤ E < 3.5	4.0	4.0	4.5	4.7	4.4	4.6	4.6
3.5 ≤ E < 3.7	4.0	4.0	4.5	4.6	4.3	4.6	4.6
3.7 ≤ E < 3.9	4.0	4.0	4.4	4.5	4.2	4.5	4.5
3.9 ≤ E < 4.1	4.0	4.0	4.4	4.5	4.2	4.5	4.5
4.1 ≤ E < 4.3	4.0	4.0	4.4	4.5	4.2	4.5	4.5
4.3 ≤ E < 4.5	4.0	4.0	4.3	4.4	4.1	4.4	4.4
4.5 ≤ E < 4.7	4.0	4.0	4.3	4.4	4.1	4.4	4.4
4.7 ≤ E < 4.9	4.0	4.0	4.3	4.4	4.1	4.4	4.4
E ≥ 4.9	4.0	4.0	4.2	4.3	4.0	4.4	4.3
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	41 < Assembly Average Burnup ≤ 42 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	4.3	4.4	4.9	5.1	4.7	5.0	5.0
2.7 ≤ E < 2.9	4.2	4.3	4.9	5.0	4.6	5.0	5.0
2.9 ≤ E < 3.1	4.2	4.2	4.8	4.9	4.6	4.9	4.9
3.1 ≤ E < 3.3	4.1	4.2	4.7	4.9	4.5	4.8	4.8
3.3 ≤ E < 3.5	4.0	4.1	4.7	4.8	4.5	4.8	4.8
3.5 ≤ E < 3.7	4.0	4.1	4.6	4.8	4.4	4.7	4.7
3.7 ≤ E < 3.9	4.0	4.1	4.6	4.7	4.4	4.7	4.7
3.9 ≤ E < 4.1	4.0	4.0	4.5	4.6	4.3	4.6	4.6
4.1 ≤ E < 4.3	4.0	4.0	4.5	4.6	4.3	4.6	4.6
4.3 ≤ E < 4.5	4.0	4.0	4.4	4.6	4.3	4.5	4.5
4.5 ≤ E < 4.7	4.0	4.0	4.4	4.5	4.2	4.5	4.5
4.7 ≤ E < 4.9	4.0	4.0	4.4	4.5	4.2	4.5	4.5
E ≥ 4.9	4.0	4.0	4.3	4.5	4.2	4.5	4.5

Table B2-17 Loading Table for PWR Fuel – 1,200 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	42 < Assembly Average Burnup ≤ 43 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	4.4	4.5	5.1	5.3	4.9	5.2	5.2
2.7 ≤ E < 2.9	4.4	4.4	5.0	5.2	4.8	5.1	5.1
2.9 ≤ E < 3.1	4.3	4.4	5.0	5.1	4.7	5.0	5.0
3.1 ≤ E < 3.3	4.2	4.3	4.9	5.0	4.7	5.0	5.0
3.3 ≤ E < 3.5	4.2	4.3	4.8	5.0	4.6	4.9	4.9
3.5 ≤ E < 3.7	4.1	4.2	4.8	4.9	4.5	4.9	4.9
3.7 ≤ E < 3.9	4.1	4.2	4.7	4.9	4.5	4.8	4.8
3.9 ≤ E < 4.1	4.0	4.1	4.7	4.8	4.4	4.8	4.8
4.1 ≤ E < 4.3	4.0	4.1	4.6	4.8	4.4	4.7	4.7
4.3 ≤ E < 4.5	4.0	4.0	4.6	4.7	4.4	4.7	4.7
4.5 ≤ E < 4.7	4.0	4.0	4.5	4.7	4.3	4.7	4.6
4.7 ≤ E < 4.9	4.0	4.0	4.5	4.6	4.3	4.6	4.6
E ≥ 4.9	4.0	4.0	4.4	4.6	4.3	4.6	4.5

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	43 < Assembly Average Burnup ≤ 44 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	4.5	4.6	5.3	5.5	5.0	5.4	5.4
2.7 ≤ E < 2.9	4.5	4.6	5.2	5.4	4.9	5.3	5.3
2.9 ≤ E < 3.1	4.4	4.5	5.1	5.3	4.9	5.2	5.2
3.1 ≤ E < 3.3	4.4	4.4	5.0	5.2	4.8	5.2	5.2
3.3 ≤ E < 3.5	4.3	4.4	5.0	5.1	4.7	5.1	5.1
3.5 ≤ E < 3.7	4.2	4.3	4.9	5.1	4.7	5.0	5.0
3.7 ≤ E < 3.9	4.2	4.3	4.9	5.0	4.6	5.0	5.0
3.9 ≤ E < 4.1	4.1	4.3	4.8	5.0	4.6	4.9	4.9
4.1 ≤ E < 4.3	4.1	4.2	4.8	4.9	4.5	4.9	4.9
4.3 ≤ E < 4.5	4.1	4.2	4.7	4.9	4.5	4.8	4.8
4.5 ≤ E < 4.7	4.0	4.2	4.7	4.8	4.5	4.8	4.8
4.7 ≤ E < 4.9	4.0	4.1	4.6	4.8	4.4	4.8	4.7
E ≥ 4.9	4.0	4.1	4.6	4.8	4.4	4.7	4.7

Table B2-17 Loading Table for PWR Fuel – 1,200 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	44 < Assembly Average Burnup ≤ 45 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	4.6	4.7	5.4	5.6	5.1	5.5	5.5
2.9 ≤ E < 3.1	4.5	4.6	5.3	5.5	5.0	5.4	5.4
3.1 ≤ E < 3.3	4.5	4.6	5.2	5.4	4.9	5.4	5.4
3.3 ≤ E < 3.5	4.4	4.5	5.2	5.4	4.9	5.3	5.3
3.5 ≤ E < 3.7	4.4	4.5	5.1	5.3	4.8	5.2	5.2
3.7 ≤ E < 3.9	4.3	4.4	5.0	5.2	4.8	5.1	5.1
3.9 ≤ E < 4.1	4.3	4.4	5.0	5.1	4.7	5.1	5.1
4.1 ≤ E < 4.3	4.2	4.3	4.9	5.1	4.7	5.0	5.0
4.3 ≤ E < 4.5	4.2	4.3	4.9	5.0	4.6	5.0	5.0
4.5 ≤ E < 4.7	4.1	4.2	4.8	5.0	4.6	4.9	4.9
4.7 ≤ E < 4.9	4.1	4.2	4.8	4.9	4.5	4.9	4.9
E ≥ 4.9	4.0	4.2	4.7	4.9	4.5	4.9	4.8

Note: For fuel assembly average burnup greater than 45 GWd/MTU, cool time tables have been revised to account for a 5% margin in heat load.

Table B2-18 Loading Table for PWR Fuel – 1,140 W/Assembly

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	45 < Assembly Average Burnup ≤ 46 GWd/MTU Minimum Cooling Time (years)						
	CE	WE	WE	B&W	CE	WE	B&W
	14×14	14×14	15×15	15×15	16×16	17×17	17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	5.0	5.2	6.0	6.2	5.6	6.0	6.0
2.9 ≤ E < 3.1	5.0	5.1	5.9	6.0	5.5	6.0	6.0
3.1 ≤ E < 3.3	4.9	5.0	5.8	6.0	5.5	5.9	5.9
3.3 ≤ E < 3.5	4.8	4.9	5.7	5.9	5.4	5.8	5.8
3.5 ≤ E < 3.7	4.8	4.9	5.6	5.8	5.3	5.7	5.7
3.7 ≤ E < 3.9	4.7	4.8	5.6	5.8	5.2	5.7	5.7
3.9 ≤ E < 4.1	4.6	4.8	5.5	5.7	5.1	5.6	5.6
4.1 ≤ E < 4.3	4.6	4.7	5.4	5.6	5.1	5.5	5.6
4.3 ≤ E < 4.5	4.5	4.6	5.4	5.6	5.0	5.5	5.5
4.5 ≤ E < 4.7	4.5	4.6	5.3	5.5	5.0	5.4	5.4
4.7 ≤ E < 4.9	4.4	4.6	5.3	5.5	4.9	5.4	5.4
E ≥ 4.9	4.4	4.5	5.2	5.4	4.9	5.4	5.3

Table B2-18 Loading Table for PWR Fuel – 1,140 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	46 < Assembly Average Burnup ≤ 47 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	5.2	5.4	6.2	6.5	5.8	6.3	6.3
2.9 ≤ E < 3.1	5.1	5.3	6.1	6.4	5.7	6.2	6.2
3.1 ≤ E < 3.3	5.0	5.2	6.0	6.2	5.6	6.1	6.1
3.3 ≤ E < 3.5	5.0	5.1	5.9	6.1	5.6	6.0	6.0
3.5 ≤ E < 3.7	4.9	5.0	5.8	6.0	5.5	5.9	5.9
3.7 ≤ E < 3.9	4.8	5.0	5.8	6.0	5.4	5.9	5.9
3.9 ≤ E < 4.1	4.8	4.9	5.7	5.9	5.3	5.8	5.8
4.1 ≤ E < 4.3	4.7	4.8	5.6	5.8	5.3	5.8	5.7
4.3 ≤ E < 4.5	4.7	4.8	5.6	5.8	5.2	5.7	5.7
4.5 ≤ E < 4.7	4.6	4.7	5.5	5.7	5.2	5.6	5.6
4.7 ≤ E < 4.9	4.6	4.7	5.5	5.7	5.1	5.6	5.6
E ≥ 4.9	4.5	4.7	5.4	5.6	5.0	5.5	5.5

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	47 < Assembly Average Burnup ≤ 48 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	5.4	5.6	6.5	6.8	6.0	6.6	6.6
2.9 ≤ E < 3.1	5.3	5.5	6.4	6.6	5.9	6.5	6.5
3.1 ≤ E < 3.3	5.2	5.4	6.2	6.5	5.8	6.4	6.4
3.3 ≤ E < 3.5	5.1	5.3	6.1	6.4	5.8	6.2	6.2
3.5 ≤ E < 3.7	5.0	5.2	6.0	6.3	5.7	6.2	6.1
3.7 ≤ E < 3.9	5.0	5.1	5.9	6.2	5.6	6.0	6.0
3.9 ≤ E < 4.1	4.9	5.0	5.9	6.1	5.5	6.0	6.0
4.1 ≤ E < 4.3	4.9	5.0	5.8	6.0	5.5	5.9	5.9
4.3 ≤ E < 4.5	4.8	4.9	5.8	6.0	5.4	5.9	5.9
4.5 ≤ E < 4.7	4.8	4.9	5.7	5.9	5.3	5.8	5.8
4.7 ≤ E < 4.9	4.7	4.9	5.7	5.8	5.3	5.8	5.8
E ≥ 4.9	4.7	4.8	5.6	5.8	5.2	5.7	5.7

Table B2-18 Loading Table for PWR Fuel – 1,140 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	48 < Assembly Average Burnup ≤ 49 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	5.6	5.8	6.8	7.0	6.3	6.9	6.9
2.9 ≤ E < 3.1	5.5	5.7	6.7	6.9	6.1	6.8	6.7
3.1 ≤ E < 3.3	5.4	5.6	6.5	6.8	6.0	6.6	6.6
3.3 ≤ E < 3.5	5.3	5.5	6.4	6.7	5.9	6.5	6.5
3.5 ≤ E < 3.7	5.2	5.4	6.3	6.6	5.9	6.4	6.4
3.7 ≤ E < 3.9	5.2	5.3	6.2	6.5	5.8	6.3	6.3
3.9 ≤ E < 4.1	5.1	5.2	6.1	6.4	5.7	6.2	6.2
4.1 ≤ E < 4.3	5.0	5.2	6.0	6.3	5.7	6.1	6.1
4.3 ≤ E < 4.5	5.0	5.1	5.9	6.2	5.6	6.0	6.0
4.5 ≤ E < 4.7	4.9	5.0	5.9	6.1	5.5	6.0	6.0
4.7 ≤ E < 4.9	4.8	5.0	5.8	6.0	5.5	5.9	5.9
E ≥ 4.9	4.8	4.9	5.8	6.0	5.4	5.9	5.9

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	49 < Assembly Average Burnup ≤ 50 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	5.7	5.8	6.9	7.3	6.4	7.0	7.0
3.1 ≤ E < 3.3	5.6	5.7	6.8	7.1	6.3	6.9	6.9
3.3 ≤ E < 3.5	5.5	5.6	6.7	7.0	6.2	6.8	6.8
3.5 ≤ E < 3.7	5.4	5.5	6.6	6.9	6.0	6.7	6.7
3.7 ≤ E < 3.9	5.4	5.5	6.5	6.8	6.0	6.6	6.6
3.9 ≤ E < 4.1	5.3	5.4	6.4	6.7	5.9	6.5	6.5
4.1 ≤ E < 4.3	5.2	5.3	6.3	6.6	5.8	6.4	6.4
4.3 ≤ E < 4.5	5.1	5.2	6.2	6.5	5.8	6.3	6.3
4.5 ≤ E < 4.7	5.0	5.2	6.1	6.4	5.7	6.2	6.2
4.7 ≤ E < 4.9	5.0	5.1	6.0	6.3	5.7	6.2	6.2
E ≥ 4.9	4.9	5.0	6.0	6.2	5.6	6.1	6.1

Table B2-18 Loading Table for PWR Fuel – 1,140 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	50 < Assembly Average Burnup ≤ 51 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	5.8	6.0	7.3	7.6	6.7	7.4	7.4
3.1 ≤ E < 3.3	5.8	5.9	7.1	7.5	6.6	7.2	7.2
3.3 ≤ E < 3.5	5.7	5.8	7.0	7.3	6.4	7.1	7.0
3.5 ≤ E < 3.7	5.6	5.7	6.8	7.2	6.3	6.9	6.9
3.7 ≤ E < 3.9	5.5	5.7	6.7	7.0	6.2	6.9	6.8
3.9 ≤ E < 4.1	5.4	5.6	6.6	6.9	6.1	6.8	6.8
4.1 ≤ E < 4.3	5.3	5.5	6.5	6.8	6.0	6.7	6.7
4.3 ≤ E < 4.5	5.2	5.4	6.4	6.8	6.0	6.6	6.6
4.5 ≤ E < 4.7	5.2	5.4	6.4	6.7	5.9	6.5	6.5
4.7 ≤ E < 4.9	5.1	5.3	6.3	6.6	5.8	6.4	6.4
E ≥ 4.9	5.0	5.2	6.2	6.5	5.8	6.4	6.3

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	51 < Assembly Average Burnup ≤ 52 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	6.0	6.3	7.6	7.9	6.9	7.7	7.7
3.1 ≤ E < 3.3	5.9	6.1	7.5	7.7	6.8	7.6	7.6
3.3 ≤ E < 3.5	5.8	6.0	7.3	7.6	6.7	7.4	7.4
3.5 ≤ E < 3.7	5.8	5.9	7.1	7.4	6.6	7.3	7.3
3.7 ≤ E < 3.9	5.7	5.9	7.0	7.3	6.5	7.1	7.1
3.9 ≤ E < 4.1	5.6	5.8	6.9	7.1	6.4	7.0	7.0
4.1 ≤ E < 4.3	5.5	5.7	6.8	7.0	6.3	6.9	6.9
4.3 ≤ E < 4.5	5.4	5.6	6.7	6.9	6.2	6.8	6.8
4.5 ≤ E < 4.7	5.4	5.6	6.6	6.8	6.1	6.8	6.8
4.7 ≤ E < 4.9	5.3	5.5	6.5	6.8	6.0	6.7	6.7
E ≥ 4.9	5.2	5.4	6.5	6.7	6.0	6.6	6.6

Table B2-18 Loading Table for PWR Fuel – 1,140 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	52 < Assembly Average Burnup ≤ 53 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	6.3	6.5	7.9	8.3	7.3	8.1	8.4
3.1 ≤ E < 3.3	6.2	6.4	7.7	8.1	7.1	7.9	7.9
3.3 ≤ E < 3.5	6.0	6.3	7.5	7.9	7.0	7.8	7.8
3.5 ≤ E < 3.7	5.9	6.1	7.4	7.8	6.9	7.6	7.6
3.7 ≤ E < 3.9	5.8	6.1	7.2	7.6	6.7	7.5	7.5
3.9 ≤ E < 4.1	5.8	6.0	7.1	7.5	6.6	7.4	7.3
4.1 ≤ E < 4.3	5.7	5.9	7.0	7.4	6.5	7.2	7.2
4.3 ≤ E < 4.5	5.6	5.8	6.9	7.2	6.4	7.1	7.1
4.5 ≤ E < 4.7	5.5	5.7	6.8	7.1	6.4	7.0	7.0
4.7 ≤ E < 4.9	5.5	5.7	6.7	7.0	6.3	6.9	6.9
E ≥ 4.9	5.4	5.6	6.6	6.9	6.2	6.9	6.9

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	53 < Assembly Average Burnup ≤ 54 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	6.6	6.8	8.3	8.8	7.6	8.6	8.6
3.1 ≤ E < 3.3	6.4	6.7	8.0	8.6	7.5	8.3	8.3
3.3 ≤ E < 3.5	6.3	6.5	7.9	8.3	7.3	8.2	8.1
3.5 ≤ E < 3.7	6.1	6.4	7.7	8.1	7.1	8.0	8.0
3.7 ≤ E < 3.9	6.0	6.3	7.6	8.0	7.0	7.9	7.8
3.9 ≤ E < 4.1	5.9	6.2	7.4	7.8	6.9	7.7	7.7
4.1 ≤ E < 4.3	5.9	6.1	7.3	7.7	6.8	7.6	7.6
4.3 ≤ E < 4.5	5.8	6.0	7.2	7.6	6.7	7.5	7.5
4.5 ≤ E < 4.7	5.7	5.9	7.0	7.5	6.6	7.4	7.3
4.7 ≤ E < 4.9	5.7	5.9	7.0	7.4	6.5	7.2	7.2
E ≥ 4.9	5.6	5.9	6.9	7.3	6.4	7.1	7.1

Table B2-18 Loading Table for PWR Fuel – 1,140 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	54 < Assembly Average Burnup ≤ 55 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	6.7	6.9	8.5	9.0	7.8	8.8	8.8
3.3 ≤ E < 3.5	6.6	6.8	8.3	8.8	7.6	8.6	8.6
3.5 ≤ E < 3.7	6.4	6.7	8.1	8.6	7.5	8.4	8.4
3.7 ≤ E < 3.9	6.3	6.6	7.9	8.4	7.3	8.2	8.2
3.9 ≤ E < 4.1	6.2	6.5	7.8	8.2	7.2	8.0	8.0
4.1 ≤ E < 4.3	6.1	6.3	7.6	8.1	7.0	7.9	7.9
4.3 ≤ E < 4.5	6.0	6.2	7.5	7.9	7.0	7.8	7.8
4.5 ≤ E < 4.7	5.9	6.1	7.4	7.8	6.9	7.7	7.7
4.7 ≤ E < 4.9	5.9	6.0	7.3	7.7	6.8	7.6	7.6
E ≥ 4.9	5.8	6.0	7.2	7.6	6.7	7.5	7.5

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	55 < Assembly Average Burnup ≤ 56 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	6.9	7.3	8.9	9.6	8.0	9.3	9.3
3.3 ≤ E < 3.5	6.8	7.1	8.7	9.3	7.8	9.0	9.0
3.5 ≤ E < 3.7	6.7	6.9	8.5	9.1	7.7	8.8	8.9
3.7 ≤ E < 3.9	6.6	6.8	8.3	8.9	7.5	8.7	8.7
3.9 ≤ E < 4.1	6.4	6.7	8.1	8.7	7.4	8.5	8.5
4.1 ≤ E < 4.3	6.3	6.6	8.0	8.5	7.2	8.3	8.3
4.3 ≤ E < 4.5	6.2	6.5	7.9	8.4	7.1	8.2	8.1
4.5 ≤ E < 4.7	6.1	6.4	7.7	8.2	7.0	8.0	8.0
4.7 ≤ E < 4.9	6.0	6.3	7.6	8.1	6.9	7.9	7.9
E ≥ 4.9	6.0	6.2	7.5	8.0	6.8	7.8	7.8

Table B2-18 Loading Table for PWR Fuel – 1,140 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	56 < Assembly Average Burnup ≤ 57 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	7.3	7.6	9.4	10.1	8.4	9.8	9.8
3.3 ≤ E < 3.5	7.1	7.4	9.2	9.9	8.2	9.6	9.6
3.5 ≤ E < 3.7	6.9	7.3	9.0	9.6	8.0	9.4	9.3
3.7 ≤ E < 3.9	6.8	7.1	8.8	9.4	7.9	9.1	9.1
3.9 ≤ E < 4.1	6.7	7.0	8.6	9.2	7.7	8.9	8.9
4.1 ≤ E < 4.3	6.6	6.9	8.4	9.0	7.6	8.8	8.8
4.3 ≤ E < 4.5	6.5	6.8	8.2	8.8	7.5	8.6	8.6
4.5 ≤ E < 4.7	6.4	6.7	8.1	8.7	7.3	8.5	8.4
4.7 ≤ E < 4.9	6.3	6.6	8.0	8.5	7.2	8.3	8.3
E ≥ 4.9	6.2	6.5	7.8	8.4	7.1	8.2	8.2

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	57 < Assembly Average Burnup ≤ 58 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	7.6	8.0	10.0	10.8	8.9	10.5	10.4
3.3 ≤ E < 3.5	7.4	7.8	9.7	10.5	8.7	10.2	10.1
3.5 ≤ E < 3.7	7.2	7.6	9.5	10.2	8.4	9.9	9.9
3.7 ≤ E < 3.9	7.1	7.5	9.3	9.9	8.2	9.7	9.6
3.9 ≤ E < 4.1	6.9	7.3	9.0	9.7	8.1	9.5	9.4
4.1 ≤ E < 4.3	6.8	7.1	8.8	9.5	7.9	9.2	9.2
4.3 ≤ E < 4.5	6.7	7.0	8.7	9.3	7.8	9.0	9.0
4.5 ≤ E < 4.7	6.6	6.9	8.5	9.1	7.7	8.9	8.9
4.7 ≤ E < 4.9	6.5	6.8	8.4	8.9	7.5	8.7	8.7
E ≥ 4.9	6.4	6.7	8.2	8.8	7.4	8.6	8.6

Table B2-18 Loading Table for PWR Fuel – 1,140 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	58 < Assembly Average Burnup ≤ 59 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	7.9	8.4	10.7	11.5	9.4	11.1	11.1
3.3 ≤ E < 3.5	7.8	8.2	10.3	11.2	9.1	10.8	10.8
3.5 ≤ E < 3.7	7.6	8.0	10.0	10.9	8.9	10.5	10.5
3.7 ≤ E < 3.9	7.4	7.8	9.8	10.6	8.7	10.2	10.2
3.9 ≤ E < 4.1	7.2	7.6	9.5	10.3	8.5	10.0	9.9
4.1 ≤ E < 4.3	7.1	7.5	9.3	10.0	8.3	9.8	9.7
4.3 ≤ E < 4.5	7.0	7.3	9.1	9.8	8.1	9.6	9.5
4.5 ≤ E < 4.7	6.9	7.2	8.9	9.6	8.0	9.4	9.4
4.7 ≤ E < 4.9	6.8	7.1	8.8	9.5	7.9	9.2	9.2
E ≥ 4.9	6.7	7.0	8.7	9.3	7.8	9.0	9.0
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	59 < Assembly Average Burnup ≤ 60 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	-	-	-	-	-	-	-
3.3 ≤ E < 3.5	8.1	8.6	11.0	11.8	9.6	11.2	11.2
3.5 ≤ E < 3.7	7.9	8.4	10.7	11.5	9.4	10.9	10.8
3.7 ≤ E < 3.9	7.7	8.2	10.3	11.2	9.1	10.6	10.5
3.9 ≤ E < 4.1	7.6	8.0	10.1	11.0	8.9	10.3	10.3
4.1 ≤ E < 4.3	7.4	7.8	9.8	10.7	8.7	10.0	10.0
4.3 ≤ E < 4.5	7.3	7.7	9.6	10.4	8.5	9.8	9.8
4.5 ≤ E < 4.7	7.1	7.6	9.4	10.2	8.4	9.7	9.6
4.7 ≤ E < 4.9	7.0	7.4	9.2	10.0	8.2	9.5	9.4
E ≥ 4.9	6.9	7.3	9.1	9.8	8.1	9.3	9.3

Table B2-19 Loading Table for PWR Fuel – 922 W/Assembly

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	30 < Assembly Average Burnup ≤ 32.5 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	4.2	4.3	4.8	4.9	4.6	4.9	4.9
2.3 ≤ E < 2.5	4.2	4.2	4.7	4.8	4.5	4.8	4.8
2.5 ≤ E < 2.7	4.1	4.2	4.7	4.8	4.5	4.8	4.8
2.7 ≤ E < 2.9	4.1	4.1	4.6	4.7	4.4	4.7	4.7
2.9 ≤ E < 3.1	4.0	4.1	4.6	4.7	4.4	4.7	4.7
3.1 ≤ E < 3.3	4.0	4.0	4.5	4.6	4.3	4.6	4.6
3.3 ≤ E < 3.5	4.0	4.0	4.5	4.6	4.3	4.6	4.6
3.5 ≤ E < 3.7	4.0	4.0	4.5	4.5	4.3	4.5	4.5
3.7 ≤ E < 3.9	4.0	4.0	4.4	4.5	4.2	4.5	4.5
3.9 ≤ E < 4.1	4.0	4.0	4.4	4.5	4.2	4.5	4.5
4.1 ≤ E < 4.3	4.0	4.0	4.4	4.5	4.2	4.4	4.4
4.3 ≤ E < 4.5	4.0	4.0	4.3	4.4	4.2	4.4	4.4
4.5 ≤ E < 4.7	4.0	4.0	4.3	4.4	4.1	4.4	4.4
4.7 ≤ E < 4.9	4.0	4.0	4.3	4.4	4.1	4.4	4.4
E ≥ 4.9	4.0	4.0	4.3	4.4	4.1	4.4	4.4

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	32.5 < Assembly Average Burnup ≤ 35 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	4.5	4.6	5.2	5.3	4.9	5.3	5.3
2.5 ≤ E < 2.7	4.4	4.5	5.1	5.3	4.9	5.2	5.2
2.7 ≤ E < 2.9	4.4	4.5	5.0	5.2	4.8	5.1	5.1
2.9 ≤ E < 3.1	4.4	4.4	5.0	5.1	4.8	5.1	5.1
3.1 ≤ E < 3.3	4.3	4.4	4.9	5.0	4.7	5.0	5.0
3.3 ≤ E < 3.5	4.3	4.3	4.9	5.0	4.7	5.0	5.0
3.5 ≤ E < 3.7	4.2	4.3	4.8	5.0	4.6	4.9	4.9
3.7 ≤ E < 3.9	4.2	4.3	4.8	4.9	4.6	4.9	4.9
3.9 ≤ E < 4.1	4.1	4.2	4.8	4.9	4.5	4.9	4.9
4.1 ≤ E < 4.3	4.1	4.2	4.7	4.9	4.5	4.8	4.8
4.3 ≤ E < 4.5	4.1	4.2	4.7	4.8	4.5	4.8	4.8
4.5 ≤ E < 4.7	4.0	4.1	4.7	4.8	4.5	4.8	4.8
4.7 ≤ E < 4.9	4.0	4.1	4.6	4.8	4.4	4.7	4.7
E ≥ 4.9	4.0	4.1	4.6	4.7	4.4	4.7	4.7

Table B2-19 Loading Table for PWR Fuel – 922 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	35 < Assembly Average Burnup ≤ 37.5 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	4.9	5.0	5.7	5.9	5.4	5.8	5.8
2.5 ≤ E < 2.7	4.8	4.9	5.7	5.8	5.3	5.7	5.7
2.7 ≤ E < 2.9	4.8	4.9	5.6	5.8	5.3	5.7	5.7
2.9 ≤ E < 3.1	4.7	4.8	5.5	5.7	5.2	5.6	5.6
3.1 ≤ E < 3.3	4.6	4.7	5.4	5.6	5.1	5.5	5.5
3.3 ≤ E < 3.5	4.6	4.7	5.4	5.6	5.0	5.5	5.5
3.5 ≤ E < 3.7	4.5	4.6	5.3	5.5	5.0	5.4	5.4
3.7 ≤ E < 3.9	4.5	4.6	5.3	5.4	5.0	5.4	5.4
3.9 ≤ E < 4.1	4.5	4.6	5.2	5.4	4.9	5.3	5.3
4.1 ≤ E < 4.3	4.4	4.5	5.2	5.4	4.9	5.3	5.3
4.3 ≤ E < 4.5	4.4	4.5	5.1	5.3	4.9	5.2	5.2
4.5 ≤ E < 4.7	4.4	4.5	5.1	5.3	4.8	5.2	5.2
4.7 ≤ E < 4.9	4.3	4.4	5.0	5.2	4.8	5.2	5.2
E ≥ 4.9	4.3	4.4	5.0	5.2	4.8	5.1	5.1
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	37.5 < Assembly Average Burnup ≤ 40 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	5.3	5.4	6.2	6.5	5.9	6.3	6.3
2.7 ≤ E < 2.9	5.2	5.3	6.1	6.4	5.8	6.2	6.2
2.9 ≤ E < 3.1	5.1	5.3	6.0	6.3	5.7	6.1	6.1
3.1 ≤ E < 3.3	5.0	5.2	6.0	6.2	5.6	6.0	6.0
3.3 ≤ E < 3.5	5.0	5.1	5.9	6.1	5.6	6.0	6.0
3.5 ≤ E < 3.7	4.9	5.0	5.9	6.0	5.5	5.9	5.9
3.7 ≤ E < 3.9	4.9	5.0	5.8	6.0	5.5	5.9	5.9
3.9 ≤ E < 4.1	4.8	5.0	5.7	5.9	5.4	5.8	5.8
4.1 ≤ E < 4.3	4.8	4.9	5.7	5.9	5.4	5.8	5.8
4.3 ≤ E < 4.5	4.8	4.9	5.7	5.8	5.3	5.8	5.7
4.5 ≤ E < 4.7	4.7	4.8	5.6	5.8	5.3	5.7	5.7
4.7 ≤ E < 4.9	4.7	4.8	5.6	5.8	5.2	5.7	5.7
E ≥ 4.9	4.6	4.8	5.5	5.7	5.2	5.6	5.6

Table B2-19 Loading Table for PWR Fuel – 922 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	40 < Assembly Average Burnup ≤ 41 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	5.5	5.6	6.6	6.8	6.0	6.6	6.6
2.7 ≤ E < 2.9	5.4	5.6	6.4	6.7	6.0	6.5	6.5
2.9 ≤ E < 3.1	5.3	5.5	6.3	6.6	5.9	6.4	6.4
3.1 ≤ E < 3.3	5.3	5.4	6.2	6.5	5.8	6.3	6.3
3.3 ≤ E < 3.5	5.2	5.3	6.1	6.4	5.8	6.3	6.2
3.5 ≤ E < 3.7	5.1	5.3	6.1	6.3	5.7	6.2	6.2
3.7 ≤ E < 3.9	5.0	5.2	6.0	6.2	5.7	6.1	6.1
3.9 ≤ E < 4.1	5.0	5.1	5.9	6.2	5.6	6.0	6.0
4.1 ≤ E < 4.3	5.0	5.1	5.9	6.1	5.6	6.0	6.0
4.3 ≤ E < 4.5	4.9	5.0	5.9	6.0	5.5	5.9	5.9
4.5 ≤ E < 4.7	4.9	5.0	5.8	6.0	5.5	5.9	5.9
4.7 ≤ E < 4.9	4.8	5.0	5.8	6.0	5.4	5.9	5.9
E ≥ 4.9	4.8	4.9	5.7	5.9	5.4	5.8	5.8
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	41 < Assembly Average Burnup ≤ 42 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	5.7	5.9	6.9	7.1	6.4	6.9	6.9
2.7 ≤ E < 2.9	5.6	5.8	6.7	7.0	6.2	6.8	6.8
2.9 ≤ E < 3.1	5.6	5.7	6.6	6.9	6.1	6.7	6.7
3.1 ≤ E < 3.3	5.5	5.6	6.5	6.8	6.0	6.6	6.6
3.3 ≤ E < 3.5	5.4	5.5	6.4	6.7	6.0	6.6	6.5
3.5 ≤ E < 3.7	5.3	5.5	6.4	6.6	5.9	6.5	6.5
3.7 ≤ E < 3.9	5.3	5.4	6.3	6.6	5.9	6.4	6.4
3.9 ≤ E < 4.1	5.2	5.4	6.2	6.5	5.8	6.3	6.3
4.1 ≤ E < 4.3	5.1	5.3	6.1	6.4	5.8	6.3	6.2
4.3 ≤ E < 4.5	5.1	5.2	6.0	6.3	5.7	6.2	6.2
4.5 ≤ E < 4.7	5.0	5.2	6.0	6.3	5.7	6.1	6.1
4.7 ≤ E < 4.9	5.0	5.1	6.0	6.2	5.6	6.1	6.1
E ≥ 4.9	4.9	5.1	5.9	6.2	5.6	6.0	6.0

Table B2-19 Loading Table for PWR Fuel – 922 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	42 < Assembly Average Burnup ≤ 43 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	5.9	6.1	7.2	7.5	6.7	7.3	7.3
2.7 ≤ E < 2.9	5.8	6.0	7.0	7.4	6.5	7.1	7.1
2.9 ≤ E < 3.1	5.8	5.9	6.9	7.3	6.4	7.0	7.0
3.1 ≤ E < 3.3	5.7	5.8	6.8	7.1	6.3	6.9	6.9
3.3 ≤ E < 3.5	5.6	5.8	6.7	7.0	6.2	6.8	6.8
3.5 ≤ E < 3.7	5.5	5.7	6.7	6.9	6.1	6.8	6.7
3.7 ≤ E < 3.9	5.5	5.6	6.6	6.8	6.1	6.7	6.7
3.9 ≤ E < 4.1	5.4	5.6	6.5	6.8	6.0	6.6	6.6
4.1 ≤ E < 4.3	5.3	5.5	6.4	6.7	6.0	6.5	6.5
4.3 ≤ E < 4.5	5.3	5.5	6.4	6.6	5.9	6.5	6.5
4.5 ≤ E < 4.7	5.2	5.4	6.3	6.6	5.9	6.4	6.4
4.7 ≤ E < 4.9	5.2	5.3	6.2	6.5	5.8	6.4	6.4
E ≥ 4.9	5.1	5.3	6.2	6.5	5.8	6.3	6.3
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	43 < Assembly Average Burnup ≤ 44 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	6.2	6.4	7.6	8.0	6.9	7.7	7.7
2.7 ≤ E < 2.9	6.0	6.2	7.4	7.8	6.8	7.5	7.5
2.9 ≤ E < 3.1	6.0	6.1	7.3	7.7	6.7	7.4	7.4
3.1 ≤ E < 3.3	5.9	6.0	7.2	7.5	6.6	7.3	7.3
3.3 ≤ E < 3.5	5.8	6.0	7.0	7.4	6.5	7.1	7.1
3.5 ≤ E < 3.7	5.8	5.9	6.9	7.3	6.4	7.0	7.0
3.7 ≤ E < 3.9	5.7	5.8	6.9	7.2	6.3	7.0	7.0
3.9 ≤ E < 4.1	5.6	5.8	6.8	7.1	6.3	6.9	6.9
4.1 ≤ E < 4.3	5.5	5.7	6.7	7.0	6.2	6.8	6.8
4.3 ≤ E < 4.5	5.5	5.7	6.7	6.9	6.1	6.8	6.8
4.5 ≤ E < 4.7	5.4	5.6	6.6	6.9	6.0	6.7	6.7
4.7 ≤ E < 4.9	5.4	5.6	6.5	6.8	6.0	6.6	6.6
E ≥ 4.9	5.3	5.5	6.5	6.8	6.0	6.6	6.6

Table B2-19 Loading Table for PWR Fuel – 922 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	44 < Assembly Average Burnup ≤ 45 GWd/MTU Minimum Cooling Time (years)						
	CE	WE	WE	B&W	CE	WE	B&W
	14x14	14x14	15x15	15x15	16x16	17x17	17x17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	6.3	6.6	7.8	8.3	7.1	7.9	7.9
2.9 ≤ E < 3.1	6.2	6.4	7.7	8.1	7.0	7.8	7.8
3.1 ≤ E < 3.3	6.1	6.3	7.6	7.9	6.9	7.7	7.7
3.3 ≤ E < 3.5	6.0	6.2	7.4	7.8	6.8	7.5	7.5
3.5 ≤ E < 3.7	5.9	6.1	7.3	7.7	6.7	7.4	7.4
3.7 ≤ E < 3.9	5.9	6.0	7.2	7.6	6.6	7.3	7.3
3.9 ≤ E < 4.1	5.8	6.0	7.1	7.5	6.6	7.2	7.2
4.1 ≤ E < 4.3	5.7	5.9	7.0	7.4	6.5	7.1	7.1
4.3 ≤ E < 4.5	5.7	5.9	6.9	7.3	6.4	7.0	7.0
4.5 ≤ E < 4.7	5.6	5.8	6.9	7.2	6.3	7.0	7.0
4.7 ≤ E < 4.9	5.6	5.8	6.8	7.1	6.3	6.9	6.9
E ≥ 4.9	5.5	5.7	6.7	7.0	6.2	6.9	6.9

Note: For fuel assembly average burnup greater than 45 GWd/MTU, cool time tables have been revised to account for a 5% margin in heat load.

Table B2-20 Loading Table for PWR Fuel – 876 W/Assembly

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	45 < Assembly Average Burnup ≤ 46 GWd/MTU Minimum Cooling Time (years)						
	CE	WE	WE	B&W	CE	WE	B&W
	14×14	14×14	15×15	15×15	16×16	17×17	17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	7.1	7.4	9.2	9.8	8.2	9.3	9.3
2.9 ≤ E < 3.1	7.0	7.3	9.0	9.6	8.0	9.1	9.0
3.1 ≤ E < 3.3	6.9	7.1	8.8	9.4	7.9	8.9	8.9
3.3 ≤ E < 3.5	6.8	7.0	8.6	9.1	7.8	8.7	8.7
3.5 ≤ E < 3.7	6.7	6.9	8.5	9.0	7.6	8.6	8.6
3.7 ≤ E < 3.9	6.6	6.8	8.3	8.9	7.5	8.5	8.4
3.9 ≤ E < 4.1	6.5	6.7	8.2	8.7	7.4	8.3	8.3
4.1 ≤ E < 4.3	6.4	6.6	8.1	8.6	7.3	8.2	8.2
4.3 ≤ E < 4.5	6.3	6.6	8.0	8.5	7.2	8.1	8.1
4.5 ≤ E < 4.7	6.2	6.5	7.9	8.4	7.2	8.0	8.0
4.7 ≤ E < 4.9	6.2	6.4	7.8	8.3	7.1	8.0	7.9
E ≥ 4.9	6.1	6.4	7.7	8.2	7.0	7.9	7.9

Table B2-20 Loading Table for PWR Fuel – 876 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	46 < Assembly Average Burnup ≤ 47 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	7.5	7.8	9.8	10.5	8.7	9.9	9.9
2.9 ≤ E < 3.1	7.4	7.7	9.6	10.3	8.5	9.7	9.7
3.1 ≤ E < 3.3	7.2	7.5	9.3	10.0	8.3	9.5	9.5
3.3 ≤ E < 3.5	7.1	7.4	9.1	9.8	8.1	9.3	9.3
3.5 ≤ E < 3.7	7.0	7.2	9.0	9.6	8.0	9.1	9.1
3.7 ≤ E < 3.9	6.9	7.1	8.8	9.4	7.9	9.0	8.9
3.9 ≤ E < 4.1	6.8	7.0	8.7	9.3	7.8	8.8	8.8
4.1 ≤ E < 4.3	6.7	6.9	8.6	9.1	7.7	8.7	8.7
4.3 ≤ E < 4.5	6.6	6.9	8.4	9.0	7.6	8.6	8.6
4.5 ≤ E < 4.7	6.5	6.8	8.3	8.9	7.5	8.5	8.5
4.7 ≤ E < 4.9	6.5	6.7	8.2	8.8	7.5	8.4	8.4
E ≥ 4.9	6.4	6.7	8.1	8.7	7.4	8.3	8.3
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	47 < Assembly Average Burnup ≤ 48 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	7.9	8.3	10.5	11.3	9.2	10.7	10.6
2.9 ≤ E < 3.1	7.7	8.1	10.2	11.1	9.0	10.4	10.3
3.1 ≤ E < 3.3	7.6	7.9	10.0	10.8	8.8	10.1	10.1
3.3 ≤ E < 3.5	7.4	7.8	9.7	10.5	8.7	9.9	9.9
3.5 ≤ E < 3.7	7.3	7.6	9.6	10.3	8.5	9.7	9.7
3.7 ≤ E < 3.9	7.2	7.5	9.4	10.1	8.4	9.5	9.5
3.9 ≤ E < 4.1	7.0	7.4	9.2	9.9	8.2	9.4	9.4
4.1 ≤ E < 4.3	7.0	7.3	9.0	9.7	8.1	9.2	9.2
4.3 ≤ E < 4.5	6.9	7.2	8.9	9.6	8.0	9.1	9.1
4.5 ≤ E < 4.7	6.8	7.1	8.8	9.5	7.9	9.0	9.0
4.7 ≤ E < 4.9	6.7	7.0	8.7	9.4	7.8	8.9	8.9
E ≥ 4.9	6.7	6.9	8.6	9.2	7.7	8.8	8.8

Table B2-20 Loading Table for PWR Fuel – 876 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	48 < Assembly Average Burnup ≤ 49 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	8.4	8.8	11.3	12.1	9.9	11.4	11.4
2.9 ≤ E < 3.1	8.2	8.6	11.0	11.8	9.6	11.1	11.1
3.1 ≤ E < 3.3	8.0	8.4	10.7	11.6	9.4	10.9	10.8
3.3 ≤ E < 3.5	7.8	8.2	10.4	11.3	9.2	10.6	10.6
3.5 ≤ E < 3.7	7.7	8.0	10.2	11.1	9.0	10.4	10.4
3.7 ≤ E < 3.9	7.6	7.9	10.0	10.8	8.8	10.2	10.1
3.9 ≤ E < 4.1	7.4	7.8	9.8	10.6	8.7	10.0	9.9
4.1 ≤ E < 4.3	7.3	7.7	9.7	10.4	8.6	9.8	9.8
4.3 ≤ E < 4.5	7.2	7.6	9.5	10.3	8.4	9.7	9.7
4.5 ≤ E < 4.7	7.1	7.5	9.4	10.1	8.3	9.6	9.5
4.7 ≤ E < 4.9	7.0	7.4	9.2	10.0	8.2	9.4	9.4
E ≥ 4.9	6.9	7.3	9.1	9.8	8.1	9.3	9.3
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	49 < Assembly Average Burnup ≤ 50 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	8.7	8.9	11.8	12.7	10.2	11.9	11.9
3.1 ≤ E < 3.3	8.4	8.7	11.5	12.4	10.0	11.7	11.6
3.3 ≤ E < 3.5	8.2	8.5	11.2	12.1	9.8	11.4	11.4
3.5 ≤ E < 3.7	8.1	8.4	11.0	11.8	9.6	11.2	11.1
3.7 ≤ E < 3.9	7.9	8.2	10.7	11.6	9.4	10.9	10.9
3.9 ≤ E < 4.1	7.8	8.0	10.5	11.4	9.2	10.7	10.7
4.1 ≤ E < 4.3	7.7	7.9	10.3	11.2	9.0	10.5	10.5
4.3 ≤ E < 4.5	7.6	7.8	10.1	11.0	8.9	10.4	10.3
4.5 ≤ E < 4.7	7.5	7.7	9.9	10.9	8.8	10.2	10.1
4.7 ≤ E < 4.9	7.4	7.6	9.8	10.7	8.7	10.0	10.0
E ≥ 4.9	7.3	7.6	9.7	10.5	8.6	9.9	9.9

Table B2-20 Loading Table for PWR Fuel – 876 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	50 < Assembly Average Burnup ≤ 51 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	8.9	9.5	12.6	13.7	11.0	12.8	12.8
3.1 ≤ E < 3.3	8.7	9.3	12.2	13.3	10.7	12.5	12.4
3.3 ≤ E < 3.5	8.5	9.0	11.9	13.0	10.5	12.1	12.1
3.5 ≤ E < 3.7	8.4	8.8	11.7	12.7	10.2	11.9	11.9
3.7 ≤ E < 3.9	8.2	8.7	11.5	12.4	10.0	11.7	11.6
3.9 ≤ E < 4.1	8.0	8.5	11.2	12.2	9.8	11.5	11.4
4.1 ≤ E < 4.3	7.9	8.4	11.0	11.9	9.6	11.3	11.2
4.3 ≤ E < 4.5	7.8	8.2	10.9	11.8	9.5	11.1	11.0
4.5 ≤ E < 4.7	7.7	8.1	10.7	11.6	9.3	10.9	10.9
4.7 ≤ E < 4.9	7.6	8.0	10.5	11.4	9.2	10.8	10.7
E ≥ 4.9	7.5	7.9	10.4	11.3	9.1	10.6	10.6
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	51 < Assembly Average Burnup ≤ 52 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	9.5	10.1	13.5	14.3	11.7	13.7	13.7
3.1 ≤ E < 3.3	9.2	9.8	13.2	13.9	11.5	13.4	13.4
3.3 ≤ E < 3.5	9.0	9.6	12.8	13.6	11.2	13.1	13.0
3.5 ≤ E < 3.7	8.8	9.4	12.5	13.3	10.9	12.8	12.7
3.7 ≤ E < 3.9	8.7	9.2	12.2	13.0	10.7	12.5	12.4
3.9 ≤ E < 4.1	8.5	9.0	12.0	12.8	10.4	12.2	12.2
4.1 ≤ E < 4.3	8.3	8.9	11.8	12.5	10.2	12.0	11.9
4.3 ≤ E < 4.5	8.2	8.7	11.6	12.3	10.0	11.8	11.8
4.5 ≤ E < 4.7	8.1	8.6	11.4	12.1	9.9	11.6	11.6
4.7 ≤ E < 4.9	8.0	8.5	11.2	11.9	9.8	11.5	11.5
E ≥ 4.9	7.9	8.3	11.1	11.8	9.6	11.3	11.3

Table B2-20 Loading Table for PWR Fuel – 876 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	52 < Assembly Average Burnup ≤ 53 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	10.1	10.9	14.0	15.3	12.6	14.7	14.7
3.1 ≤ E < 3.3	9.8	10.5	13.7	14.9	12.2	14.3	14.3
3.3 ≤ E < 3.5	9.6	10.2	13.4	14.6	11.9	14.0	13.9
3.5 ≤ E < 3.7	9.3	10.0	13.1	14.2	11.6	13.7	13.6
3.7 ≤ E < 3.9	9.1	9.9	12.8	13.9	11.4	13.4	13.3
3.9 ≤ E < 4.1	8.9	9.6	12.5	13.7	11.2	13.1	13.1
4.1 ≤ E < 4.3	8.8	9.4	12.2	13.4	11.0	12.9	12.8
4.3 ≤ E < 4.5	8.7	9.2	12.0	13.2	10.8	12.6	12.6
4.5 ≤ E < 4.7	8.5	9.0	11.8	13.0	10.6	12.4	12.4
4.7 ≤ E < 4.9	8.4	8.9	11.7	12.8	10.4	12.2	12.2
E ≥ 4.9	8.3	8.8	11.5	12.6	10.2	12.0	12.0
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	53 < Assembly Average Burnup ≤ 54 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	10.8	11.6	15.1	16.4	13.5	15.7	15.6
3.1 ≤ E < 3.3	10.5	11.3	14.6	15.9	13.1	15.3	15.3
3.3 ≤ E < 3.5	10.1	11.0	14.2	15.6	12.7	14.9	14.9
3.5 ≤ E < 3.7	9.9	10.7	13.9	15.2	12.4	14.6	14.6
3.7 ≤ E < 3.9	9.7	10.4	13.6	14.9	12.1	14.3	14.2
3.9 ≤ E < 4.1	9.5	10.2	13.4	14.6	11.9	14.0	14.0
4.1 ≤ E < 4.3	9.3	9.9	13.1	14.3	11.7	13.7	13.7
4.3 ≤ E < 4.5	9.1	9.8	12.9	14.0	11.5	13.5	13.5
4.5 ≤ E < 4.7	9.0	9.6	12.6	13.8	11.3	13.3	13.3
4.7 ≤ E < 4.9	8.8	9.5	12.4	13.6	11.1	13.1	13.1
E ≥ 4.9	8.7	9.6	12.2	13.4	10.9	12.9	12.9

Table B2-20 Loading Table for PWR Fuel – 876 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	54 < Assembly Average Burnup ≤ 55 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	11.2	12.0	15.6	17.0	13.9	16.3	16.3
3.3 ≤ E < 3.5	10.9	11.7	15.2	16.6	13.6	15.9	15.9
3.5 ≤ E < 3.7	10.6	11.4	14.9	16.2	13.3	15.6	15.6
3.7 ≤ E < 3.9	10.3	11.2	14.5	15.9	13.0	15.3	15.3
3.9 ≤ E < 4.1	10.0	10.9	14.2	15.6	12.7	15.0	14.9
4.1 ≤ E < 4.3	9.9	10.7	13.9	15.3	12.4	14.7	14.6
4.3 ≤ E < 4.5	9.7	10.5	13.7	15.1	12.2	14.4	14.4
4.5 ≤ E < 4.7	9.5	10.2	13.5	14.8	12.0	14.1	14.1
4.7 ≤ E < 4.9	9.3	10.0	13.3	14.6	11.8	13.9	13.9
E ≥ 4.9	9.2	9.9	13.1	14.3	11.6	13.8	13.7
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	55 < Assembly Average Burnup ≤ 56 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	11.9	12.8	16.6	18.1	14.5	17.4	17.3
3.3 ≤ E < 3.5	11.5	12.5	16.2	17.6	14.1	17.0	16.9
3.5 ≤ E < 3.7	11.3	12.1	15.8	17.3	13.7	16.6	16.6
3.7 ≤ E < 3.9	11.0	11.8	15.5	17.0	13.4	16.3	16.2
3.9 ≤ E < 4.1	10.7	11.6	15.2	16.6	13.2	15.9	15.9
4.1 ≤ E < 4.3	10.5	11.3	14.9	16.3	12.9	15.7	15.6
4.3 ≤ E < 4.5	10.2	11.1	14.6	16.0	12.6	15.4	15.3
4.5 ≤ E < 4.7	10.0	10.9	14.3	15.8	12.4	15.2	15.1
4.7 ≤ E < 4.9	9.9	10.7	14.1	15.6	12.2	14.9	14.9
E ≥ 4.9	9.7	10.5	13.9	15.3	12.0	14.7	14.6

Table B2-20 Loading Table for PWR Fuel – 876 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	56 < Assembly Average Burnup ≤ 57 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	12.6	13.6	17.6	19.1	15.5	18.4	18.4
3.3 ≤ E < 3.5	12.3	13.3	17.2	18.7	15.0	18.0	18.0
3.5 ≤ E < 3.7	11.9	13.0	16.8	18.4	14.6	17.7	17.6
3.7 ≤ E < 3.9	11.7	12.6	16.5	18.0	14.3	17.3	17.3
3.9 ≤ E < 4.1	11.4	12.3	16.1	17.7	14.0	17.0	17.0
4.1 ≤ E < 4.3	11.2	12.0	15.8	17.4	13.7	16.7	16.7
4.3 ≤ E < 4.5	10.9	11.8	15.5	17.1	13.5	16.4	16.4
4.5 ≤ E < 4.7	10.7	11.6	15.3	16.8	13.2	16.1	16.1
4.7 ≤ E < 4.9	10.5	11.4	15.1	16.6	13.0	15.8	15.8
E ≥ 4.9	10.3	11.2	14.8	16.3	12.8	15.7	15.6
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	57 < Assembly Average Burnup ≤ 58 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	13.5	14.5	18.7	20.1	16.4	19.5	19.4
3.3 ≤ E < 3.5	13.1	14.1	18.3	19.8	15.9	19.1	19.0
3.5 ≤ E < 3.7	12.7	13.8	17.9	19.4	15.6	18.7	18.7
3.7 ≤ E < 3.9	12.4	13.4	17.5	19.0	15.3	18.4	18.3
3.9 ≤ E < 4.1	12.1	13.1	17.2	18.7	14.9	18.0	18.0
4.1 ≤ E < 4.3	11.8	12.9	16.9	18.4	14.6	17.7	17.7
4.3 ≤ E < 4.5	11.6	12.6	16.5	18.1	14.3	17.4	17.4
4.5 ≤ E < 4.7	11.4	12.3	16.3	17.8	14.0	17.2	17.1
4.7 ≤ E < 4.9	11.1	12.1	16.0	17.5	13.8	16.9	16.8
E ≥ 4.9	11.0	11.9	15.8	17.3	13.6	16.7	16.6

Table B2-20 Loading Table for PWR Fuel – 876 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	58 < Assembly Average Burnup ≤ 59 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	14.3	15.4	19.7	21.2	17.4	20.5	20.5
3.3 ≤ E < 3.5	13.9	15.0	19.3	20.8	16.9	20.1	20.1
3.5 ≤ E < 3.7	13.5	14.7	18.9	20.4	16.6	19.8	19.7
3.7 ≤ E < 3.9	13.2	14.3	18.5	20.1	16.1	19.4	19.4
3.9 ≤ E < 4.1	12.9	14.0	18.2	19.7	15.8	19.1	19.0
4.1 ≤ E < 4.3	12.6	13.7	17.8	19.4	15.5	18.8	18.7
4.3 ≤ E < 4.5	12.2	13.4	17.6	19.1	15.2	18.4	18.4
4.5 ≤ E < 4.7	12.0	13.1	17.3	18.9	14.9	18.2	18.1
4.7 ≤ E < 4.9	11.8	12.9	17.0	18.6	14.7	17.9	17.8
E ≥ 4.9	11.6	12.7	16.8	18.4	14.5	17.6	17.6
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	59 < Assembly Average Burnup ≤ 60 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	-	-	-	-	-	-	-
3.3 ≤ E < 3.5	14.7	15.9	20.2	21.9	17.9	20.7	20.6
3.5 ≤ E < 3.7	14.3	15.6	19.9	21.5	17.5	20.3	20.2
3.7 ≤ E < 3.9	13.9	15.2	19.5	21.1	17.1	19.9	19.9
3.9 ≤ E < 4.1	13.6	14.9	19.2	20.8	16.8	19.6	19.5
4.1 ≤ E < 4.3	13.3	14.5	18.8	20.5	16.4	19.3	19.2
4.3 ≤ E < 4.5	13.1	14.2	18.5	20.2	16.1	18.9	18.9
4.5 ≤ E < 4.7	12.8	13.9	18.2	19.9	15.8	18.7	18.6
4.7 ≤ E < 4.9	12.5	13.7	18.0	19.6	15.6	18.4	18.3
E ≥ 4.9	12.3	13.5	17.7	19.4	15.4	18.2	18.1

Table B2-21 Loading Table for PWR Fuel – 800 W/Assembly

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	30 < Assembly Average Burnup ≤ 32.5 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	4.8	4.9	5.6	5.7	5.2	5.6	5.6
2.3 ≤ E < 2.5	4.7	4.8	5.5	5.7	5.2	5.6	5.6
2.5 ≤ E < 2.7	4.7	4.8	5.4	5.6	5.1	5.5	5.5
2.7 ≤ E < 2.9	4.6	4.7	5.4	5.5	5.0	5.5	5.5
2.9 ≤ E < 3.1	4.6	4.7	5.3	5.5	5.0	5.4	5.4
3.1 ≤ E < 3.3	4.5	4.6	5.3	5.4	5.0	5.3	5.3
3.3 ≤ E < 3.5	4.5	4.6	5.2	5.4	4.9	5.3	5.3
3.5 ≤ E < 3.7	4.5	4.5	5.1	5.3	4.9	5.2	5.2
3.7 ≤ E < 3.9	4.4	4.5	5.1	5.3	4.8	5.2	5.2
3.9 ≤ E < 4.1	4.4	4.5	5.0	5.2	4.8	5.2	5.1
4.1 ≤ E < 4.3	4.4	4.4	5.0	5.2	4.8	5.1	5.1
4.3 ≤ E < 4.5	4.3	4.4	5.0	5.1	4.8	5.1	5.1
4.5 ≤ E < 4.7	4.3	4.4	5.0	5.1	4.7	5.0	5.0
4.7 ≤ E < 4.9	4.3	4.4	4.9	5.1	4.7	5.0	5.0
E ≥ 4.9	4.3	4.3	4.9	5.0	4.7	5.0	5.0

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	32.5 < Assembly Average Burnup ≤ 35 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	5.2	5.3	6.0	6.3	5.7	6.1	6.1
2.5 ≤ E < 2.7	5.1	5.2	6.0	6.2	5.7	6.0	6.0
2.7 ≤ E < 2.9	5.0	5.2	5.9	6.1	5.6	6.0	6.0
2.9 ≤ E < 3.1	5.0	5.1	5.9	6.0	5.5	5.9	5.9
3.1 ≤ E < 3.3	4.9	5.0	5.8	6.0	5.5	5.9	5.9
3.3 ≤ E < 3.5	4.9	5.0	5.8	5.9	5.4	5.8	5.8
3.5 ≤ E < 3.7	4.9	4.9	5.7	5.9	5.4	5.8	5.8
3.7 ≤ E < 3.9	4.8	4.9	5.7	5.8	5.3	5.8	5.8
3.9 ≤ E < 4.1	4.8	4.9	5.6	5.8	5.3	5.7	5.7
4.1 ≤ E < 4.3	4.7	4.8	5.6	5.8	5.2	5.7	5.7
4.3 ≤ E < 4.5	4.7	4.8	5.5	5.7	5.2	5.6	5.6
4.5 ≤ E < 4.7	4.7	4.8	5.5	5.7	5.2	5.6	5.6
4.7 ≤ E < 4.9	4.6	4.7	5.5	5.7	5.1	5.6	5.6
E ≥ 4.9	4.6	4.7	5.4	5.6	5.1	5.5	5.5

Table B2-21 Loading Table for PWR Fuel – 800 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	35 < Assembly Average Burnup ≤ 37.5 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	5.8	5.9	6.9	7.1	6.4	6.9	6.9
2.5 ≤ E < 2.7	5.7	5.8	6.8	7.0	6.3	6.8	6.8
2.7 ≤ E < 2.9	5.6	5.7	6.7	6.9	6.2	6.7	6.7
2.9 ≤ E < 3.1	5.5	5.7	6.6	6.8	6.1	6.7	6.7
3.1 ≤ E < 3.3	5.5	5.6	6.5	6.8	6.0	6.6	6.6
3.3 ≤ E < 3.5	5.4	5.5	6.4	6.7	6.0	6.5	6.5
3.5 ≤ E < 3.7	5.3	5.5	6.3	6.6	5.9	6.5	6.4
3.7 ≤ E < 3.9	5.3	5.4	6.3	6.5	5.9	6.4	6.4
3.9 ≤ E < 4.1	5.2	5.4	6.2	6.5	5.8	6.3	6.3
4.1 ≤ E < 4.3	5.2	5.3	6.1	6.4	5.8	6.3	6.3
4.3 ≤ E < 4.5	5.1	5.3	6.1	6.4	5.7	6.2	6.2
4.5 ≤ E < 4.7	5.1	5.2	6.0	6.3	5.7	6.2	6.2
4.7 ≤ E < 4.9	5.0	5.2	6.0	6.3	5.7	6.1	6.1
E ≥ 4.9	5.0	5.1	6.0	6.2	5.6	6.1	6.1

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	37.5 < Assembly Average Burnup ≤ 40 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	6.3	6.5	7.7	8.1	7.0	7.8	7.8
2.7 ≤ E < 2.9	6.2	6.4	7.6	8.0	6.9	7.7	7.7
2.9 ≤ E < 3.1	6.1	6.3	7.5	7.8	6.9	7.6	7.6
3.1 ≤ E < 3.3	6.0	6.2	7.4	7.7	6.8	7.4	7.4
3.3 ≤ E < 3.5	5.9	6.1	7.2	7.6	6.7	7.3	7.3
3.5 ≤ E < 3.7	5.9	6.0	7.1	7.5	6.6	7.3	7.2
3.7 ≤ E < 3.9	5.8	6.0	7.1	7.4	6.5	7.2	7.1
3.9 ≤ E < 4.1	5.8	5.9	7.0	7.4	6.5	7.1	7.1
4.1 ≤ E < 4.3	5.7	5.9	6.9	7.3	6.4	7.0	7.0
4.3 ≤ E < 4.5	5.7	5.8	6.9	7.2	6.4	7.0	7.0
4.5 ≤ E < 4.7	5.6	5.8	6.8	7.1	6.3	6.9	6.9
4.7 ≤ E < 4.9	5.6	5.7	6.8	7.1	6.3	6.9	6.9
E ≥ 4.9	5.5	5.7	6.7	7.0	6.2	6.8	6.8

Table B2-21 Loading Table for PWR Fuel – 800 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	40 < Assembly Average Burnup ≤ 41 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	6.6	6.8	8.2	8.7	7.4	8.3	8.3
2.7 ≤ E < 2.9	6.5	6.7	8.0	8.5	7.3	8.1	8.1
2.9 ≤ E < 3.1	6.4	6.6	7.9	8.3	7.2	8.0	8.0
3.1 ≤ E < 3.3	6.3	6.5	7.8	8.2	7.1	7.9	7.9
3.3 ≤ E < 3.5	6.2	6.4	7.7	8.0	7.0	7.8	7.8
3.5 ≤ E < 3.7	6.1	6.3	7.6	8.0	6.9	7.7	7.7
3.7 ≤ E < 3.9	6.0	6.2	7.5	7.9	6.8	7.6	7.6
3.9 ≤ E < 4.1	6.0	6.1	7.4	7.8	6.8	7.5	7.5
4.1 ≤ E < 4.3	5.9	6.1	7.3	7.7	6.7	7.4	7.4
4.3 ≤ E < 4.5	5.9	6.0	7.2	7.6	6.7	7.4	7.3
4.5 ≤ E < 4.7	5.8	6.0	7.1	7.6	6.6	7.3	7.3
4.7 ≤ E < 4.9	5.8	5.9	7.1	7.5	6.6	7.2	7.2
E ≥ 4.9	5.7	5.9	7.0	7.4	6.5	7.2	7.2
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	41 < Assembly Average Burnup ≤ 42 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	6.9	7.1	8.7	9.3	7.8	8.8	8.8
2.7 ≤ E < 2.9	6.8	7.0	8.6	9.0	7.7	8.6	8.6
2.9 ≤ E < 3.1	6.7	6.9	8.4	8.9	7.6	8.5	8.5
3.1 ≤ E < 3.3	6.6	6.8	8.2	8.7	7.5	8.3	8.3
3.3 ≤ E < 3.5	6.5	6.7	8.1	8.6	7.3	8.2	8.2
3.5 ≤ E < 3.7	6.4	6.6	8.0	8.5	7.2	8.1	8.1
3.7 ≤ E < 3.9	6.3	6.5	7.9	8.3	7.1	8.0	8.0
3.9 ≤ E < 4.1	6.2	6.5	7.8	8.2	7.1	7.9	7.9
4.1 ≤ E < 4.3	6.1	6.4	7.7	8.1	7.0	7.8	7.8
4.3 ≤ E < 4.5	6.1	6.3	7.6	8.0	6.9	7.8	7.7
4.5 ≤ E < 4.7	6.0	6.3	7.6	8.0	6.9	7.7	7.7
4.7 ≤ E < 4.9	6.0	6.2	7.5	7.9	6.8	7.6	7.6
E ≥ 4.9	5.9	6.1	7.4	7.8	6.8	7.6	7.6

Table B2-21 Loading Table for PWR Fuel – 800 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	42 < Assembly Average Burnup ≤ 43 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	7.3	7.5	9.3	9.9	8.3	9.4	9.4
2.7 ≤ E < 2.9	7.1	7.4	9.1	9.7	8.1	9.2	9.2
2.9 ≤ E < 3.1	7.0	7.2	8.9	9.5	8.0	9.0	9.0
3.1 ≤ E < 3.3	6.9	7.1	8.8	9.3	7.9	8.9	8.8
3.3 ≤ E < 3.5	6.8	7.0	8.6	9.2	7.8	8.7	8.7
3.5 ≤ E < 3.7	6.7	6.9	8.5	9.0	7.7	8.6	8.6
3.7 ≤ E < 3.9	6.6	6.8	8.4	8.9	7.6	8.5	8.5
3.9 ≤ E < 4.1	6.5	6.8	8.2	8.8	7.5	8.4	8.4
4.1 ≤ E < 4.3	6.5	6.7	8.1	8.7	7.4	8.3	8.3
4.3 ≤ E < 4.5	6.4	6.6	8.0	8.6	7.3	8.2	8.2
4.5 ≤ E < 4.7	6.3	6.6	8.0	8.5	7.2	8.1	8.1
4.7 ≤ E < 4.9	6.2	6.5	7.9	8.4	7.2	8.0	8.0
E ≥ 4.9	6.2	6.4	7.8	8.3	7.1	8.0	8.0
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	43 < Assembly Average Burnup ≤ 44 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	7.7	8.0	10.0	10.8	8.8	10.0	10.1
2.7 ≤ E < 2.9	7.5	7.8	9.7	10.5	8.7	9.9	9.8
2.9 ≤ E < 3.1	7.4	7.7	9.5	10.2	8.5	9.7	9.6
3.1 ≤ E < 3.3	7.2	7.5	9.3	10.0	8.3	9.5	9.4
3.3 ≤ E < 3.5	7.1	7.4	9.2	9.8	8.2	9.3	9.3
3.5 ≤ E < 3.7	7.1	7.3	9.0	9.7	8.0	9.1	9.1
3.7 ≤ E < 3.9	6.9	7.2	8.9	9.5	8.0	9.0	9.0
3.9 ≤ E < 4.1	6.8	7.1	8.8	9.4	7.9	8.9	8.9
4.1 ≤ E < 4.3	6.7	7.0	8.7	9.2	7.8	8.8	8.8
4.3 ≤ E < 4.5	6.7	6.9	8.5	9.1	7.7	8.7	8.7
4.5 ≤ E < 4.7	6.6	6.9	8.5	9.0	7.6	8.6	8.6
4.7 ≤ E < 4.9	6.6	6.8	8.4	8.9	7.6	8.5	8.5
E ≥ 4.9	6.5	6.8	8.3	8.9	7.5	8.5	8.4

Table B2-21 Loading Table for PWR Fuel – 800 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	44 < Assembly Average Burnup ≤ 45 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	7.9	8.2	10.5	11.4	9.2	10.6	10.6
2.9 ≤ E < 3.1	7.8	8.1	10.2	11.1	9.0	10.4	10.4
3.1 ≤ E < 3.3	7.6	7.9	10.0	10.8	8.8	10.1	10.1
3.3 ≤ E < 3.5	7.5	7.8	9.8	10.6	8.7	9.9	9.9
3.5 ≤ E < 3.7	7.3	7.7	9.6	10.4	8.6	9.8	9.8
3.7 ≤ E < 3.9	7.2	7.6	9.5	10.2	8.4	9.6	9.6
3.9 ≤ E < 4.1	7.1	7.5	9.3	10.0	8.3	9.5	9.5
4.1 ≤ E < 4.3	7.0	7.4	9.2	9.9	8.2	9.4	9.3
4.3 ≤ E < 4.5	7.0	7.3	9.1	9.8	8.1	9.2	9.2
4.5 ≤ E < 4.7	6.9	7.2	9.0	9.7	8.0	9.1	9.1
4.7 ≤ E < 4.9	6.8	7.1	8.9	9.6	7.9	9.0	9.0
E ≥ 4.9	6.8	7.0	8.8	9.5	7.9	9.0	8.9

Note: For fuel assembly average burnup greater than 45 GWd/MTU, cool time tables have been revised to account for a 5% margin in heat load.

Table B2-22 Loading Table for PWR Fuel – 760 W/Assembly

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	45 < Assembly Average Burnup ≤ 46 GWd/MTU Minimum Cooling Time (years)						
	CE	WE	WE	B&W	CE	WE	B&W
	14×14	14×14	15×15	15×15	16×16	17×17	17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	9.2	9.8	12.8	13.9	11.2	13.0	13.0
2.9 ≤ E < 3.1	9.0	9.6	12.5	13.6	10.9	12.7	12.7
3.1 ≤ E < 3.3	8.9	9.4	12.1	13.3	10.6	12.4	12.4
3.3 ≤ E < 3.5	8.7	9.1	11.9	13.0	10.4	12.1	12.1
3.5 ≤ E < 3.7	8.6	9.0	11.8	12.8	10.2	11.9	11.9
3.7 ≤ E < 3.9	8.4	8.8	11.6	12.5	10.0	11.8	11.7
3.9 ≤ E < 4.1	8.3	8.7	11.4	12.3	9.9	11.6	11.5
4.1 ≤ E < 4.3	8.1	8.6	11.2	12.2	9.7	11.4	11.4
4.3 ≤ E < 4.5	8.0	8.5	11.1	12.0	9.6	11.3	11.3
4.5 ≤ E < 4.7	7.9	8.4	10.9	11.9	9.5	11.2	11.1
4.7 ≤ E < 4.9	7.9	8.3	10.8	11.7	9.4	11.0	11.0
E ≥ 4.9	7.8	8.2	10.7	11.6	9.3	10.9	10.9

Table B2-22 Loading Table for PWR Fuel – 760 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	46 < Assembly Average Burnup ≤ 47 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	9.9	10.6	13.8	15.0	12.0	13.9	13.9
2.9 ≤ E < 3.1	9.7	10.3	13.5	14.7	11.7	13.7	13.7
3.1 ≤ E < 3.3	9.4	10.0	13.2	14.4	11.4	13.4	13.4
3.3 ≤ E < 3.5	9.2	9.8	12.9	14.0	11.2	13.1	13.1
3.5 ≤ E < 3.7	9.0	9.6	12.7	13.8	11.0	12.9	12.8
3.7 ≤ E < 3.9	8.9	9.4	12.4	13.6	10.8	12.6	12.6
3.9 ≤ E < 4.1	8.8	9.3	12.2	13.4	10.6	12.5	12.4
4.1 ≤ E < 4.3	8.6	9.1	12.0	13.2	10.4	12.2	12.2
4.3 ≤ E < 4.5	8.5	9.0	11.8	13.0	10.3	12.1	12.0
4.5 ≤ E < 4.7	8.4	8.9	11.7	12.8	10.1	11.9	11.9
4.7 ≤ E < 4.9	8.3	8.8	11.6	12.7	10.0	11.8	11.8
E ≥ 4.9	8.2	8.7	11.5	12.5	9.9	11.7	11.7
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	47 < Assembly Average Burnup ≤ 48 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	10.6	11.4	14.9	16.1	12.9	15.1	15.1
2.9 ≤ E < 3.1	10.4	11.1	14.5	15.8	12.5	14.7	14.7
3.1 ≤ E < 3.3	10.0	10.8	14.1	15.5	12.2	14.4	14.4
3.3 ≤ E < 3.5	9.9	10.5	13.9	15.2	12.0	14.1	14.0
3.5 ≤ E < 3.7	9.6	10.3	13.6	14.9	11.8	13.8	13.8
3.7 ≤ E < 3.9	9.5	10.1	13.4	14.6	11.6	13.6	13.6
3.9 ≤ E < 4.1	9.3	9.9	13.2	14.4	11.4	13.4	13.4
4.1 ≤ E < 4.3	9.1	9.8	13.0	14.1	11.2	13.2	13.2
4.3 ≤ E < 4.5	9.0	9.6	12.8	14.0	11.1	13.0	13.0
4.5 ≤ E < 4.7	8.9	9.5	12.6	13.8	10.9	12.9	12.8
4.7 ≤ E < 4.9	8.8	9.3	12.4	13.6	10.8	12.7	12.7
E ≥ 4.9	8.7	9.2	12.3	13.5	10.7	12.5	12.5

Table B2-22 Loading Table for PWR Fuel – 760 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	48 < Assembly Average Burnup ≤ 49 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	11.4	12.2	16.0	17.3	13.9	16.2	16.2
2.9 ≤ E < 3.1	11.1	11.8	15.6	17.0	13.5	15.8	15.8
3.1 ≤ E < 3.3	10.8	11.6	15.3	16.6	13.2	15.5	15.5
3.3 ≤ E < 3.5	10.6	11.3	14.9	16.3	12.9	15.2	15.2
3.5 ≤ E < 3.7	10.3	11.1	14.7	16.0	12.7	14.9	14.9
3.7 ≤ E < 3.9	10.1	10.9	14.4	15.7	12.4	14.6	14.6
3.9 ≤ E < 4.1	9.9	10.7	14.1	15.5	12.1	14.4	14.4
4.1 ≤ E < 4.3	9.7	10.4	13.9	15.2	12.0	14.1	14.1
4.3 ≤ E < 4.5	9.6	10.2	13.7	15.0	11.8	13.9	13.9
4.5 ≤ E < 4.7	9.5	10.1	13.5	14.9	11.7	13.8	13.8
4.7 ≤ E < 4.9	9.3	9.9	13.4	14.6	11.5	13.6	13.6
E ≥ 4.9	9.2	9.8	13.2	14.5	11.4	13.5	13.5
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	49 < Assembly Average Burnup ≤ 50 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	11.9	12.4	16.8	18.2	14.5	17.0	17.0
3.1 ≤ E < 3.3	11.6	12.1	16.4	17.8	14.1	16.6	16.6
3.3 ≤ E < 3.5	11.3	11.8	16.0	17.5	13.8	16.3	16.2
3.5 ≤ E < 3.7	11.1	11.6	15.7	17.2	13.6	16.0	16.0
3.7 ≤ E < 3.9	10.8	11.4	15.5	16.9	13.3	15.7	15.7
3.9 ≤ E < 4.1	10.6	11.2	15.2	16.6	13.1	15.5	15.5
4.1 ≤ E < 4.3	10.4	11.0	14.9	16.3	12.9	15.3	15.2
4.3 ≤ E < 4.5	10.2	10.8	14.7	16.1	12.7	15.0	15.0
4.5 ≤ E < 4.7	10.1	10.6	14.5	15.9	12.5	14.9	14.8
4.7 ≤ E < 4.9	9.9	10.5	14.3	15.7	12.3	14.6	14.6
E ≥ 4.9	9.8	10.3	14.1	15.5	12.2	14.5	14.5

Table B2-22 Loading Table for PWR Fuel – 760 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	50 < Assembly Average Burnup ≤ 51 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	12.4	13.4	17.8	19.3	15.6	18.1	18.1
3.1 ≤ E < 3.3	12.1	13.1	17.5	19.0	15.2	17.8	17.8
3.3 ≤ E < 3.5	11.8	12.7	17.2	18.7	14.9	17.4	17.4
3.5 ≤ E < 3.7	11.5	12.4	16.8	18.3	14.5	17.2	17.1
3.7 ≤ E < 3.9	11.3	12.1	16.5	18.0	14.3	16.9	16.8
3.9 ≤ E < 4.1	11.1	11.9	16.2	17.7	14.0	16.6	16.5
4.1 ≤ E < 4.3	10.9	11.7	16.0	17.5	13.8	16.3	16.3
4.3 ≤ E < 4.5	10.7	11.5	15.8	17.3	13.6	16.1	16.0
4.5 ≤ E < 4.7	10.5	11.4	15.5	17.1	13.4	15.8	15.9
4.7 ≤ E < 4.9	10.4	11.2	15.3	16.8	13.2	15.7	15.7
E ≥ 4.9	10.2	11.1	15.2	16.7	13.1	15.5	15.5
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	51 < Assembly Average Burnup ≤ 52 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	13.3	14.3	19.0	20.1	16.7	19.4	19.3
3.1 ≤ E < 3.3	12.9	14.0	18.6	19.7	16.3	19.0	18.9
3.3 ≤ E < 3.5	12.6	13.6	18.2	19.4	15.9	18.6	18.6
3.5 ≤ E < 3.7	12.3	13.3	17.9	19.1	15.6	18.3	18.3
3.7 ≤ E < 3.9	12.0	13.1	17.6	18.8	15.3	18.0	17.9
3.9 ≤ E < 4.1	11.8	12.8	17.4	18.5	15.0	17.7	17.7
4.1 ≤ E < 4.3	11.6	12.5	17.1	18.2	14.8	17.5	17.4
4.3 ≤ E < 4.5	11.4	12.3	16.8	18.0	14.5	17.3	17.2
4.5 ≤ E < 4.7	11.2	12.1	16.6	17.7	14.4	17.0	17.0
4.7 ≤ E < 4.9	11.1	11.9	16.4	17.5	14.1	16.8	16.8
E ≥ 4.9	10.9	11.8	16.2	17.4	13.9	16.6	16.5

Table B2-22 Loading Table for PWR Fuel – 760 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	52 < Assembly Average Burnup ≤ 53 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	14.2	15.3	19.7	21.3	17.8	20.5	20.5
3.1 ≤ E < 3.3	13.8	15.0	19.3	20.9	17.4	20.1	20.1
3.3 ≤ E < 3.5	13.5	14.6	18.9	20.6	17.1	19.8	19.7
3.5 ≤ E < 3.7	13.1	14.3	18.6	20.3	16.7	19.5	19.4
3.7 ≤ E < 3.9	12.9	14.2	18.3	19.9	16.4	19.2	19.1
3.9 ≤ E < 4.1	12.6	13.7	18.0	19.6	16.0	18.9	18.8
4.1 ≤ E < 4.3	12.3	13.5	17.7	19.4	15.8	18.6	18.5
4.3 ≤ E < 4.5	12.1	13.2	17.5	19.1	15.6	18.4	18.3
4.5 ≤ E < 4.7	11.9	13.0	17.3	18.8	15.3	18.2	18.1
4.7 ≤ E < 4.9	11.8	12.8	17.0	18.7	15.2	17.9	17.8
E ≥ 4.9	11.6	12.6	16.9	18.5	14.9	17.7	17.7

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	53 < Assembly Average Burnup ≤ 54 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	15.2	16.4	20.9	22.5	18.9	21.7	21.6
3.1 ≤ E < 3.3	14.8	16.0	20.4	22.1	18.5	21.3	21.3
3.3 ≤ E < 3.5	14.4	15.6	20.0	21.8	18.1	21.0	20.9
3.5 ≤ E < 3.7	14.0	15.2	19.7	21.4	17.7	20.6	20.6
3.7 ≤ E < 3.9	13.7	14.9	19.4	21.1	17.4	20.3	20.3
3.9 ≤ E < 4.1	13.4	14.6	19.1	20.8	17.2	20.1	20.0
4.1 ≤ E < 4.3	13.2	14.4	18.9	20.5	16.9	19.8	19.7
4.3 ≤ E < 4.5	12.9	14.1	18.6	20.3	16.6	19.5	19.5
4.5 ≤ E < 4.7	12.7	13.9	18.3	20.1	16.4	19.3	19.2
4.7 ≤ E < 4.9	12.5	13.6	18.1	19.8	16.1	19.0	19.0
E ≥ 4.9	12.4	13.9	17.9	19.6	15.9	18.8	18.8

Table B2-22 Loading Table for PWR Fuel – 760 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	54 < Assembly Average Burnup ≤ 55 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	15.7	17.1	21.6	23.2	19.6	22.5	22.4
3.3 ≤ E < 3.5	15.4	17.7	21.2	22.9	19.2	22.1	22.1
3.5 ≤ E < 3.7	15.0	16.3	20.9	22.6	18.9	21.8	21.8
3.7 ≤ E < 3.9	14.6	16.0	20.6	22.2	18.5	21.5	21.5
3.9 ≤ E < 4.1	14.4	15.7	20.2	21.9	18.3	21.2	21.2
4.1 ≤ E < 4.3	14.1	15.4	19.9	21.7	18.0	20.9	20.9
4.3 ≤ E < 4.5	13.8	15.1	19.7	21.4	17.7	20.7	20.6
4.5 ≤ E < 4.7	13.6	14.9	19.4	21.2	17.5	20.5	20.4
4.7 ≤ E < 4.9	13.4	14.6	19.2	21.0	17.2	20.2	20.1
E ≥ 4.9	13.2	14.4	19.0	20.7	17.0	19.9	19.9
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	55 < Assembly Average Burnup ≤ 56 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	16.8	18.1	22.7	24.4	20.2	23.6	23.6
3.3 ≤ E < 3.5	16.3	17.7	22.4	24.1	19.8	23.3	23.3
3.5 ≤ E < 3.7	15.9	17.3	21.9	23.7	19.5	23.0	22.9
3.7 ≤ E < 3.9	15.6	17.0	21.7	23.4	19.2	22.6	22.6
3.9 ≤ E < 4.1	15.3	16.7	21.4	23.1	18.8	22.4	22.3
4.1 ≤ E < 4.3	15.0	16.4	21.0	22.9	18.5	22.1	22.0
4.3 ≤ E < 4.5	14.8	16.1	20.8	22.6	18.3	21.8	21.8
4.5 ≤ E < 4.7	14.5	15.8	20.5	22.4	17.9	21.6	21.5
4.7 ≤ E < 4.9	14.3	15.6	20.3	22.2	17.8	21.3	21.3
E ≥ 4.9	14.0	15.4	20.0	21.9	17.6	21.1	21.1

Table B2-22 Loading Table for PWR Fuel – 760 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	56 < Assembly Average Burnup ≤ 57 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	17.7	19.2	23.8	25.6	21.3	24.7	24.7
3.3 ≤ E < 3.5	17.3	18.8	23.4	25.2	20.9	24.4	24.4
3.5 ≤ E < 3.7	16.9	18.4	23.1	24.9	20.5	24.0	24.0
3.7 ≤ E < 3.9	16.6	18.1	22.7	24.6	20.2	23.7	23.7
3.9 ≤ E < 4.1	16.2	17.7	22.4	24.3	19.9	23.5	23.5
4.1 ≤ E < 4.3	15.9	17.4	22.2	24.0	19.6	23.2	23.2
4.3 ≤ E < 4.5	15.7	17.1	21.9	23.8	19.3	23.0	22.9
4.5 ≤ E < 4.7	15.4	16.8	21.6	23.5	19.1	22.7	22.6
4.7 ≤ E < 4.9	15.2	16.6	21.4	23.3	18.8	22.5	22.4
E ≥ 4.9	15.0	16.4	21.2	23.0	18.6	22.2	22.2
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	57 < Assembly Average Burnup ≤ 58 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	18.8	20.2	24.9	26.7	22.3	25.8	25.8
3.3 ≤ E < 3.5	18.3	19.9	24.6	26.3	22.0	25.5	25.5
3.5 ≤ E < 3.7	17.9	19.5	24.2	26.0	21.6	25.2	25.2
3.7 ≤ E < 3.9	17.6	19.1	23.9	25.7	21.3	24.9	24.8
3.9 ≤ E < 4.1	17.3	18.8	23.6	25.4	20.9	24.6	24.6
4.1 ≤ E < 4.3	16.9	18.4	23.3	25.1	20.6	24.4	24.3
4.3 ≤ E < 4.5	16.6	18.1	23.0	24.9	20.4	24.1	24.0
4.5 ≤ E < 4.7	16.3	17.9	22.8	24.6	20.0	23.8	23.8
4.7 ≤ E < 4.9	16.1	17.6	22.5	24.4	19.9	23.6	23.6
E ≥ 4.9	15.8	17.4	22.3	24.2	19.7	23.4	23.3

Table B2-22 Loading Table for PWR Fuel – 760 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	58 < Assembly Average Burnup ≤ 59 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	19.8	21.3	25.9	27.7	23.4	26.9	26.9
3.3 ≤ E < 3.5	19.3	20.9	25.6	27.4	23.0	26.7	26.6
3.5 ≤ E < 3.7	18.9	20.5	25.3	27.1	22.7	26.3	26.2
3.7 ≤ E < 3.9	18.6	20.2	24.9	26.8	22.3	26.0	25.9
3.9 ≤ E < 4.1	18.2	19.8	24.6	26.5	22.0	25.7	25.7
4.1 ≤ E < 4.3	17.9	19.5	24.3	26.2	21.7	25.5	25.4
4.3 ≤ E < 4.5	17.6	19.2	24.1	26.0	21.4	25.2	25.2
4.5 ≤ E < 4.7	17.3	18.9	23.9	25.8	21.2	25.0	24.9
4.7 ≤ E < 4.9	17.1	18.7	23.6	25.5	20.9	24.7	24.7
E ≥ 4.9	16.8	18.4	23.4	25.3	20.7	24.5	24.4
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	59 < Assembly Average Burnup ≤ 60 GWd/MTU						
	Minimum Cooling Time (years)						
	CE 14×14	WE 14×14	WE 15×15	B&W 15×15	CE 16×16	WE 17×17	B&W 17×17
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	-	-	-	-	-	-	-
3.3 ≤ E < 3.5	20.3	22.0	26.7	28.4	24.1	27.2	27.1
3.5 ≤ E < 3.7	20.0	21.5	26.4	28.1	23.7	26.8	26.7
3.7 ≤ E < 3.9	19.6	21.2	26.0	27.8	23.4	26.5	26.5
3.9 ≤ E < 4.1	19.3	20.8	25.7	27.6	23.1	26.2	26.2
4.1 ≤ E < 4.3	18.9	20.5	25.4	27.3	22.7	26.0	25.9
4.3 ≤ E < 4.5	18.6	20.2	25.2	27.1	22.5	25.7	25.6
4.5 ≤ E < 4.7	18.3	20.0	24.9	26.8	22.2	25.5	25.4
4.7 ≤ E < 4.9	18.0	19.7	24.7	26.6	22.0	25.2	25.2
E ≥ 4.9	17.7	19.5	24.4	26.4	21.7	25.0	24.9

Table B2-23 Loading Table for BWR Fuel – 379 W/Assembly

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	30 < Assembly Average Burnup ≤ 32.5 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	4.3	4.6	4.0	4.5	4.0	4.5	4.4
2.3 ≤ E < 2.5	4.2	4.6	4.0	4.5	4.0	4.4	4.4
2.5 ≤ E < 2.7	4.2	4.5	4.0	4.4	4.0	4.4	4.3
2.7 ≤ E < 2.9	4.1	4.5	4.0	4.4	4.0	4.3	4.3
2.9 ≤ E < 3.1	4.1	4.4	4.0	4.3	4.0	4.3	4.2
3.1 ≤ E < 3.3	4.0	4.4	4.0	4.3	4.0	4.2	4.2
3.3 ≤ E < 3.5	4.0	4.3	4.0	4.2	4.0	4.2	4.1
3.5 ≤ E < 3.7	4.0	4.3	4.0	4.2	4.0	4.2	4.1
3.7 ≤ E < 3.9	4.0	4.3	4.0	4.2	4.0	4.1	4.0
3.9 ≤ E < 4.1	4.0	4.2	4.0	4.1	4.0	4.1	4.0
4.1 ≤ E < 4.3	4.0	4.2	4.0	4.1	4.0	4.1	4.0
4.3 ≤ E < 4.5	4.0	4.2	4.0	4.1	4.0	4.0	4.0
4.5 ≤ E < 4.7	4.0	4.1	4.0	4.0	4.0	4.0	4.0
4.7 ≤ E < 4.9	4.0	4.1	4.0	4.0	4.0	4.0	4.0
E ≥ 4.9	4.0	4.1	4.0	4.0	4.0	4.0	4.0

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	32.5 < Assembly Average Burnup ≤ 35 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	4.7	5.0	4.3	4.9	4.0	4.9	4.8
2.5 ≤ E < 2.7	4.6	4.9	4.3	4.8	4.0	4.8	4.7
2.7 ≤ E < 2.9	4.5	4.9	4.2	4.8	4.0	4.7	4.6
2.9 ≤ E < 3.1	4.5	4.8	4.2	4.7	4.0	4.7	4.6
3.1 ≤ E < 3.3	4.4	4.8	4.1	4.7	4.0	4.6	4.5
3.3 ≤ E < 3.5	4.4	4.7	4.0	4.6	4.0	4.6	4.5
3.5 ≤ E < 3.7	4.3	4.7	4.0	4.6	4.0	4.5	4.5
3.7 ≤ E < 3.9	4.3	4.6	4.0	4.5	4.0	4.5	4.4
3.9 ≤ E < 4.1	4.2	4.6	4.0	4.5	4.0	4.5	4.4
4.1 ≤ E < 4.3	4.2	4.5	4.0	4.5	4.0	4.4	4.3
4.3 ≤ E < 4.5	4.2	4.5	4.0	4.4	4.0	4.4	4.3
4.5 ≤ E < 4.7	4.1	4.5	4.0	4.4	4.0	4.4	4.3
4.7 ≤ E < 4.9	4.1	4.5	4.0	4.4	4.0	4.3	4.2
E ≥ 4.9	4.1	4.4	4.0	4.3	4.0	4.3	4.2

Table B2-23 Loading Table for BWR Fuel – 379 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	35 < Assembly Average Burnup ≤ 37.5 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	5.2	5.6	4.7	5.4	4.4	5.4	5.2
2.5 ≤ E < 2.7	5.1	5.5	4.7	5.3	4.3	5.3	5.2
2.7 ≤ E < 2.9	5.0	5.4	4.6	5.3	4.3	5.2	5.1
2.9 ≤ E < 3.1	4.9	5.4	4.5	5.2	4.2	5.1	5.0
3.1 ≤ E < 3.3	4.9	5.3	4.5	5.1	4.1	5.1	4.9
3.3 ≤ E < 3.5	4.8	5.2	4.4	5.0	4.1	5.0	4.9
3.5 ≤ E < 3.7	4.8	5.1	4.4	5.0	4.0	4.9	4.8
3.7 ≤ E < 3.9	4.7	5.1	4.3	4.9	4.0	4.9	4.8
3.9 ≤ E < 4.1	4.6	5.0	4.3	4.9	4.0	4.9	4.7
4.1 ≤ E < 4.3	4.6	5.0	4.3	4.9	4.0	4.8	4.7
4.3 ≤ E < 4.5	4.6	4.9	4.2	4.8	4.0	4.8	4.7
4.5 ≤ E < 4.7	4.5	4.9	4.2	4.8	4.0	4.7	4.6
4.7 ≤ E < 4.9	4.5	4.9	4.1	4.7	4.0	4.7	4.6
E ≥ 4.9	4.5	4.9	4.1	4.7	4.0	4.7	4.6
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	37.5 < Assembly Average Burnup ≤ 40 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	5.7	6.1	5.2	5.9	4.7	5.9	5.7
2.7 ≤ E < 2.9	5.6	6.0	5.1	5.8	4.6	5.8	5.7
2.9 ≤ E < 3.1	5.5	5.9	5.0	5.8	4.6	5.7	5.6
3.1 ≤ E < 3.3	5.5	5.9	4.9	5.7	4.5	5.6	5.5
3.3 ≤ E < 3.5	5.4	5.8	4.9	5.6	4.4	5.6	5.4
3.5 ≤ E < 3.7	5.3	5.7	4.8	5.6	4.4	5.5	5.4
3.7 ≤ E < 3.9	5.2	5.7	4.7	5.5	4.3	5.4	5.3
3.9 ≤ E < 4.1	5.2	5.6	4.7	5.4	4.3	5.4	5.2
4.1 ≤ E < 4.3	5.1	5.6	4.6	5.4	4.3	5.3	5.2
4.3 ≤ E < 4.5	5.0	5.5	4.6	5.3	4.2	5.3	5.1
4.5 ≤ E < 4.7	5.0	5.5	4.5	5.3	4.2	5.2	5.0
4.7 ≤ E < 4.9	5.0	5.4	4.5	5.2	4.1	5.2	5.0
E ≥ 4.9	4.9	5.4	4.5	5.2	4.1	5.1	5.0

Table B2-23 Loading Table for BWR Fuel – 379 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	40 < Assembly Average Burnup ≤ 41 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	6.0	6.5	5.4	6.2	4.9	6.1	6.0
2.7 ≤ E < 2.9	5.9	6.4	5.3	6.1	4.8	6.0	5.9
2.9 ≤ E < 3.1	5.8	6.2	5.2	6.0	4.7	5.9	5.8
3.1 ≤ E < 3.3	5.7	6.1	5.1	5.9	4.7	5.9	5.7
3.3 ≤ E < 3.5	5.6	6.0	5.0	5.9	4.6	5.8	5.6
3.5 ≤ E < 3.7	5.5	6.0	5.0	5.8	4.5	5.7	5.6
3.7 ≤ E < 3.9	5.5	5.9	4.9	5.7	4.5	5.7	5.5
3.9 ≤ E < 4.1	5.4	5.9	4.9	5.7	4.4	5.6	5.5
4.1 ≤ E < 4.3	5.3	5.8	4.8	5.6	4.4	5.5	5.4
4.3 ≤ E < 4.5	5.3	5.8	4.8	5.6	4.4	5.5	5.3
4.5 ≤ E < 4.7	5.2	5.7	4.7	5.5	4.3	5.4	5.3
4.7 ≤ E < 4.9	5.2	5.7	4.7	5.5	4.3	5.4	5.2
E ≥ 4.9	5.1	5.6	4.6	5.4	4.2	5.4	5.2
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	41 < Assembly Average Burnup ≤ 42 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	6.3	6.8	5.6	6.5	5.1	6.4	6.2
2.7 ≤ E < 2.9	6.2	6.7	5.5	6.4	5.0	6.3	6.1
2.9 ≤ E < 3.1	6.0	6.6	5.5	6.3	4.9	6.2	6.0
3.1 ≤ E < 3.3	6.0	6.5	5.4	6.2	4.8	6.1	5.9
3.3 ≤ E < 3.5	5.9	6.4	5.3	6.1	4.8	6.0	5.9
3.5 ≤ E < 3.7	5.8	6.3	5.2	6.0	4.7	5.9	5.8
3.7 ≤ E < 3.9	5.7	6.2	5.1	5.9	4.6	5.9	5.7
3.9 ≤ E < 4.1	5.6	6.1	5.0	5.9	4.6	5.8	5.7
4.1 ≤ E < 4.3	5.6	6.0	5.0	5.8	4.5	5.8	5.6
4.3 ≤ E < 4.5	5.5	6.0	4.9	5.8	4.5	5.7	5.6
4.5 ≤ E < 4.7	5.5	5.9	4.9	5.7	4.5	5.7	5.5
4.7 ≤ E < 4.9	5.4	5.9	4.9	5.7	4.4	5.6	5.5
E ≥ 4.9	5.4	5.8	4.8	5.6	4.4	5.6	5.4

Table B2-23 Loading Table for BWR Fuel – 379 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	42 < Assembly Average Burnup ≤ 43 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	6.6	7.1	5.9	6.8	5.3	6.8	6.6
2.7 ≤ E < 2.9	6.5	7.0	5.8	6.7	5.2	6.6	6.4
2.9 ≤ E < 3.1	6.4	6.9	5.7	6.6	5.1	6.5	6.3
3.1 ≤ E < 3.3	6.3	6.8	5.6	6.5	5.0	6.4	6.2
3.3 ≤ E < 3.5	6.1	6.7	5.5	6.4	4.9	6.3	6.1
3.5 ≤ E < 3.7	6.0	6.6	5.4	6.3	4.9	6.2	6.0
3.7 ≤ E < 3.9	6.0	6.5	5.4	6.2	4.8	6.1	5.9
3.9 ≤ E < 4.1	5.9	6.4	5.3	6.1	4.8	6.0	5.9
4.1 ≤ E < 4.3	5.8	6.3	5.2	6.0	4.7	6.0	5.8
4.3 ≤ E < 4.5	5.8	6.3	5.1	6.0	4.6	5.9	5.8
4.5 ≤ E < 4.7	5.7	6.2	5.1	6.0	4.6	5.9	5.7
4.7 ≤ E < 4.9	5.7	6.1	5.0	5.9	4.6	5.9	5.7
E ≥ 4.9	5.6	6.1	5.0	5.9	4.5	5.8	5.6
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	43 < Assembly Average Burnup ≤ 44 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	7.0	7.6	6.1	7.2	5.5	7.1	6.9
2.7 ≤ E < 2.9	6.8	7.4	6.0	7.0	5.4	6.9	6.7
2.9 ≤ E < 3.1	6.7	7.3	5.9	6.9	5.3	6.8	6.6
3.1 ≤ E < 3.3	6.6	7.1	5.8	6.8	5.2	6.7	6.5
3.3 ≤ E < 3.5	6.5	7.0	5.7	6.7	5.1	6.6	6.4
3.5 ≤ E < 3.7	6.4	6.9	5.7	6.6	5.0	6.5	6.3
3.7 ≤ E < 3.9	6.3	6.8	5.6	6.5	5.0	6.5	6.2
3.9 ≤ E < 4.1	6.2	6.7	5.5	6.4	4.9	6.4	6.1
4.1 ≤ E < 4.3	6.1	6.7	5.5	6.4	4.9	6.3	6.0
4.3 ≤ E < 4.5	6.0	6.6	5.4	6.3	4.8	6.2	6.0
4.5 ≤ E < 4.7	5.9	6.5	5.3	6.2	4.8	6.1	5.9
4.7 ≤ E < 4.9	5.9	6.5	5.3	6.2	4.7	6.1	5.9
E ≥ 4.9	5.8	6.4	5.2	6.1	4.7	6.0	5.9

Table B2-23 Loading Table for BWR Fuel – 379 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	44 < Assembly Average Burnup ≤ 45 GWd/MTU Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	7.2	7.9	6.3	7.5	5.6	7.4	7.1
2.9 ≤ E < 3.1	7.0	7.7	6.2	7.3	5.5	7.2	6.9
3.1 ≤ E < 3.3	6.9	7.6	6.1	7.1	5.4	7.0	6.8
3.3 ≤ E < 3.5	6.8	7.4	6.0	7.0	5.4	6.9	6.7
3.5 ≤ E < 3.7	6.7	7.3	5.9	6.9	5.3	6.9	6.6
3.7 ≤ E < 3.9	6.6	7.2	5.8	6.8	5.2	6.8	6.5
3.9 ≤ E < 4.1	6.5	7.1	5.8	6.8	5.1	6.7	6.4
4.1 ≤ E < 4.3	6.4	7.0	5.7	6.7	5.0	6.6	6.3
4.3 ≤ E < 4.5	6.3	6.9	5.6	6.6	5.0	6.5	6.3
4.5 ≤ E < 4.7	6.3	6.8	5.6	6.5	4.9	6.4	6.2
4.7 ≤ E < 4.9	6.2	6.8	5.5	6.5	4.9	6.4	6.1
E ≥ 4.9	6.1	6.7	5.4	6.4	4.8	6.3	6.1

Note: For fuel assembly average burnup greater than 45 GWd/MTU, cool time tables have been revised to account for a 5% margin in heat load.

Table B2-24 Loading Table for BWR Fuel – 360 W/Assembly

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	45 < Assembly Average Burnup ≤ 46 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	8.5	9.3	7.3	8.8	6.3	8.6	8.2
2.9 ≤ E < 3.1	8.3	9.0	7.1	8.6	6.2	8.4	8.0
3.1 ≤ E < 3.3	8.1	8.9	7.0	8.4	6.0	8.2	7.9
3.3 ≤ E < 3.5	8.0	8.8	6.8	8.2	6.0	8.0	7.7
3.5 ≤ E < 3.7	7.9	8.6	6.7	8.0	5.9	7.9	7.6
3.7 ≤ E < 3.9	7.7	8.4	6.7	7.9	5.8	7.8	7.5
3.9 ≤ E < 4.1	7.6	8.3	6.6	7.8	5.8	7.7	7.4
4.1 ≤ E < 4.3	7.5	8.2	6.5	7.7	5.7	7.6	7.3
4.3 ≤ E < 4.5	7.4	8.1	6.4	7.6	5.6	7.5	7.2
4.5 ≤ E < 4.7	7.3	8.0	6.3	7.6	5.6	7.4	7.1
4.7 ≤ E < 4.9	7.2	7.9	6.2	7.5	5.5	7.4	7.0
E ≥ 4.9	7.1	7.8	6.1	7.4	5.4	7.3	7.0

Table B2-24 Loading Table for BWR Fuel – 360 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	46 < Assembly Average Burnup ≤ 47 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	9.1	10.0	7.7	9.3	6.7	9.2	8.7
2.9 ≤ E < 3.1	8.9	9.8	7.5	9.1	6.5	8.9	8.5
3.1 ≤ E < 3.3	8.7	9.5	7.4	8.9	6.4	8.8	8.3
3.3 ≤ E < 3.5	8.5	9.3	7.2	8.7	6.2	8.6	8.2
3.5 ≤ E < 3.7	8.3	9.1	7.0	8.6	6.1	8.4	8.0
3.7 ≤ E < 3.9	8.2	9.0	7.0	8.4	6.0	8.3	7.9
3.9 ≤ E < 4.1	8.0	8.8	6.9	8.3	6.0	8.1	7.8
4.1 ≤ E < 4.3	7.9	8.7	6.8	8.2	5.9	8.0	7.7
4.3 ≤ E < 4.5	7.8	8.6	6.7	8.1	5.8	7.9	7.6
4.5 ≤ E < 4.7	7.7	8.5	6.6	8.0	5.8	7.9	7.5
4.7 ≤ E < 4.9	7.6	8.4	6.5	7.9	5.7	7.8	7.4
E ≥ 4.9	7.5	8.3	6.5	7.8	5.7	7.7	7.4
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	47 < Assembly Average Burnup ≤ 48 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	9.8	10.7	8.2	9.9	6.9	9.8	9.3
2.9 ≤ E < 3.1	9.6	10.5	8.0	9.7	6.8	9.5	9.1
3.1 ≤ E < 3.3	9.3	10.2	7.8	9.5	6.7	9.3	8.9
3.3 ≤ E < 3.5	9.1	9.9	7.7	9.3	6.6	9.2	8.7
3.5 ≤ E < 3.7	8.9	9.7	7.5	9.1	6.5	9.0	8.5
3.7 ≤ E < 3.9	8.7	9.6	7.4	8.9	6.3	8.8	8.4
3.9 ≤ E < 4.1	8.6	9.4	7.2	8.8	6.2	8.7	8.2
4.1 ≤ E < 4.3	8.4	9.3	7.1	8.7	6.1	8.6	8.1
4.3 ≤ E < 4.5	8.3	9.1	7.0	8.6	6.0	8.4	8.0
4.5 ≤ E < 4.7	8.1	9.0	6.9	8.5	6.0	8.3	7.9
4.7 ≤ E < 4.9	8.0	8.9	6.9	8.3	5.9	8.2	7.8
E ≥ 4.9	7.9	8.8	6.8	8.2	5.9	8.1	7.8

Table B2-24 Loading Table for BWR Fuel – 360 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	48 < Assembly Average Burnup ≤ 49 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	10.5	11.6	8.7	10.8	7.3	10.6	9.9
2.9 ≤ E < 3.1	10.2	11.3	8.5	10.4	7.1	10.2	9.7
3.1 ≤ E < 3.3	10.0	11.0	8.3	10.1	7.0	9.9	9.4
3.3 ≤ E < 3.5	9.7	10.7	8.1	9.9	6.9	9.8	9.2
3.5 ≤ E < 3.7	9.5	10.5	7.9	9.7	6.8	9.6	9.0
3.7 ≤ E < 3.9	9.3	10.3	7.8	9.5	6.7	9.4	8.9
3.9 ≤ E < 4.1	9.1	10.1	7.7	9.4	6.5	9.2	8.7
4.1 ≤ E < 4.3	9.0	9.9	7.5	9.2	6.4	9.0	8.6
4.3 ≤ E < 4.5	8.8	9.7	7.4	9.1	6.3	8.9	8.5
4.5 ≤ E < 4.7	8.7	9.6	7.3	8.9	6.3	8.8	8.4
4.7 ≤ E < 4.9	8.6	9.5	7.2	8.9	6.2	8.7	8.3
E ≥ 4.9	8.5	9.3	7.1	8.8	6.1	8.6	8.2
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	49 < Assembly Average Burnup ≤ 50 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	11.0	12.0	9.0	11.2	7.6	11.0	10.3
3.1 ≤ E < 3.3	10.7	11.7	8.8	10.9	7.4	10.7	10.1
3.3 ≤ E < 3.5	10.4	11.5	8.6	10.7	7.2	10.4	9.8
3.5 ≤ E < 3.7	10.2	11.3	8.4	10.4	7.0	10.2	9.7
3.7 ≤ E < 3.9	10.0	11.0	8.2	10.2	7.0	10.0	9.5
3.9 ≤ E < 4.1	9.7	10.8	8.0	10.0	6.8	9.8	9.3
4.1 ≤ E < 4.3	9.6	10.6	7.9	9.8	6.7	9.7	9.1
4.3 ≤ E < 4.5	9.4	10.4	7.8	9.7	6.7	9.5	9.0
4.5 ≤ E < 4.7	9.3	10.2	7.7	9.5	6.6	9.4	8.9
4.7 ≤ E < 4.9	9.1	10.1	7.6	9.4	6.5	9.2	8.7
E ≥ 4.9	9.0	10.0	7.5	9.3	6.4	9.1	8.6

Table B2-24 Loading Table for BWR Fuel – 360 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	50 < Assembly Average Burnup ≤ 51 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	11.8	12.9	9.6	12.0	8.0	11.8	11.1
3.1 ≤ E < 3.3	11.5	12.6	9.4	11.7	7.8	11.5	10.9
3.3 ≤ E < 3.5	11.2	12.3	9.1	11.5	7.6	11.2	10.6
3.5 ≤ E < 3.7	10.9	11.9	8.9	11.1	7.5	11.0	10.3
3.7 ≤ E < 3.9	10.7	11.8	8.7	10.9	7.3	10.7	10.0
3.9 ≤ E < 4.1	10.4	11.6	8.6	10.7	7.2	10.5	9.9
4.1 ≤ E < 4.3	10.3	11.3	8.4	10.5	7.0	10.3	9.7
4.3 ≤ E < 4.5	10.0	11.2	8.3	10.4	7.0	10.1	9.6
4.5 ≤ E < 4.7	9.9	11.0	8.1	10.1	6.8	9.9	9.4
4.7 ≤ E < 4.9	9.8	10.9	8.0	10.0	6.8	9.8	9.3
E ≥ 4.9	9.6	10.7	7.9	9.9	6.7	9.7	9.1

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	51 < Assembly Average Burnup ≤ 52 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	12.7	13.9	10.3	12.9	8.4	12.6	11.9
3.1 ≤ E < 3.3	12.3	13.4	10.0	12.5	8.2	12.3	11.6
3.3 ≤ E < 3.5	11.9	13.2	9.8	12.1	8.0	11.9	11.3
3.5 ≤ E < 3.7	11.7	12.9	9.5	11.9	7.9	11.7	11.0
3.7 ≤ E < 3.9	11.5	12.6	9.3	11.7	7.7	11.4	10.8
3.9 ≤ E < 4.1	11.2	12.4	9.1	11.5	7.6	11.3	10.5
4.1 ≤ E < 4.3	11.0	12.1	8.9	11.3	7.4	11.0	10.3
4.3 ≤ E < 4.5	10.8	11.8	8.8	11.1	7.3	10.9	10.2
4.5 ≤ E < 4.7	10.6	11.7	8.7	10.9	7.2	10.7	10.0
4.7 ≤ E < 4.9	10.5	11.6	8.5	10.7	7.1	10.5	9.9
E ≥ 4.9	10.2	11.4	8.4	10.6	7.0	10.4	9.8

Table B2-24 Loading Table for BWR Fuel – 360 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	52 < Assembly Average Burnup ≤ 53 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	13.6	14.8	11.0	13.7	8.9	13.4	12.7
3.1 ≤ E < 3.3	13.2	14.5	10.7	13.3	8.7	13.1	12.4
3.3 ≤ E < 3.5	12.8	14.1	10.4	13.0	8.5	12.8	12.0
3.5 ≤ E < 3.7	12.6	13.8	10.1	12.7	8.3	12.5	11.8
3.7 ≤ E < 3.9	12.2	13.5	9.8	12.4	8.1	12.2	11.5
3.9 ≤ E < 4.1	11.9	13.2	9.7	12.2	7.9	12.0	11.3
4.1 ≤ E < 4.3	11.7	13.0	9.5	12.0	7.8	11.8	11.1
4.3 ≤ E < 4.5	11.6	12.7	9.3	11.8	7.7	11.5	10.9
4.5 ≤ E < 4.7	11.4	12.5	9.2	11.6	7.6	11.4	10.7
4.7 ≤ E < 4.9	11.2	12.4	9.0	11.5	7.5	11.3	10.5
E ≥ 4.9	11.0	12.1	8.9	11.3	7.4	11.1	10.4
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	53 < Assembly Average Burnup ≤ 54 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	14.5	15.8	11.8	14.6	9.5	14.4	13.6
3.1 ≤ E < 3.3	14.1	15.4	11.4	14.3	9.2	14.0	13.2
3.3 ≤ E < 3.5	13.8	15.1	11.1	13.9	8.9	13.6	12.8
3.5 ≤ E < 3.7	13.4	14.7	10.9	13.6	8.7	13.4	12.6
3.7 ≤ E < 3.9	13.1	14.4	10.6	13.3	8.6	13.1	12.2
3.9 ≤ E < 4.1	12.9	14.1	10.4	13.1	8.4	12.8	12.0
4.1 ≤ E < 4.3	12.6	13.9	10.1	12.8	8.2	12.5	11.8
4.3 ≤ E < 4.5	12.4	13.6	9.9	12.6	8.1	12.3	11.6
4.5 ≤ E < 4.7	12.1	13.4	9.7	12.3	7.9	12.1	11.4
4.7 ≤ E < 4.9	11.9	13.2	9.6	12.2	7.9	11.9	11.2
E ≥ 4.9	11.7	13.1	9.4	12.0	7.8	11.7	11.1

Table B2-24 Loading Table for BWR Fuel – 360 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	54 < Assembly Average Burnup ≤ 55 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	15.0	16.4	12.1	15.2	9.8	14.9	14.1
3.3 ≤ E < 3.5	14.7	16.0	11.9	14.9	9.5	14.6	13.7
3.5 ≤ E < 3.7	14.3	15.7	11.5	14.5	9.3	14.2	13.4
3.7 ≤ E < 3.9	13.9	15.4	11.3	14.2	9.0	13.9	13.1
3.9 ≤ E < 4.1	13.6	15.1	11.1	13.9	8.9	13.6	12.8
4.1 ≤ E < 4.3	13.3	14.7	10.8	13.6	8.7	13.4	12.5
4.3 ≤ E < 4.5	13.1	14.5	10.5	13.4	8.5	13.1	12.3
4.5 ≤ E < 4.7	12.9	14.3	10.4	13.2	8.4	13.0	12.1
4.7 ≤ E < 4.9	12.8	14.1	10.2	13.0	8.3	12.8	11.9
E ≥ 4.9	12.5	13.9	10.0	12.8	8.1	12.5	11.7
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	55 < Assembly Average Burnup ≤ 56 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	15.8	17.5	13.1	16.2	10.4	15.9	15.0
3.3 ≤ E < 3.5	15.5	17.1	12.7	15.8	10.1	15.5	14.6
3.5 ≤ E < 3.7	15.1	16.7	12.3	15.5	9.9	15.2	14.3
3.7 ≤ E < 3.9	14.7	16.3	12.0	15.1	9.7	14.8	13.9
3.9 ≤ E < 4.1	14.4	16.0	11.8	14.9	9.4	14.6	13.6
4.1 ≤ E < 4.3	14.0	15.7	11.5	14.5	9.2	14.3	13.4
4.3 ≤ E < 4.5	13.8	15.4	11.3	14.3	9.0	14.0	13.1
4.5 ≤ E < 4.7	13.7	15.2	11.1	14.1	8.8	13.8	12.9
4.7 ≤ E < 4.9	13.4	15.0	10.9	13.9	8.7	13.7	12.8
E ≥ 4.9	13.3	14.8	10.7	13.7	8.6	13.4	12.5

Table B2-24 Loading Table for BWR Fuel – 360 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	56 < Assembly Average Burnup ≤ 57 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	16.8	18.4	13.8	17.2	11.1	16.9	16.0
3.3 ≤ E < 3.5	16.5	18.1	13.5	16.8	10.9	16.4	15.5
3.5 ≤ E < 3.7	16.0	17.7	13.1	16.4	10.5	16.2	15.2
3.7 ≤ E < 3.9	15.7	17.3	12.9	16.1	10.2	15.7	14.8
3.9 ≤ E < 4.1	15.4	17.1	12.5	15.8	10.0	15.4	14.5
4.1 ≤ E < 4.3	15.1	16.8	12.2	15.4	9.8	15.2	14.3
4.3 ≤ E < 4.5	14.8	16.4	12.0	15.2	9.6	14.8	14.0
4.5 ≤ E < 4.7	14.6	16.2	11.8	15.0	9.4	14.7	13.8
4.7 ≤ E < 4.9	14.3	15.9	11.6	14.7	9.2	14.4	13.5
E ≥ 4.9	14.0	15.7	11.4	14.5	9.0	14.3	13.4
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	57 < Assembly Average Burnup ≤ 58 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	17.8	19.5	14.8	18.2	11.8	17.8	16.8
3.3 ≤ E < 3.5	17.3	19.1	14.4	17.7	11.5	17.5	16.5
3.5 ≤ E < 3.7	17.0	18.7	14.0	17.4	11.2	17.1	16.1
3.7 ≤ E < 3.9	16.6	18.3	13.6	17.0	10.9	16.8	15.7
3.9 ≤ E < 4.1	16.3	17.9	13.3	16.7	10.6	16.4	15.4
4.1 ≤ E < 4.3	15.9	17.7	13.1	16.3	10.3	16.1	15.1
4.3 ≤ E < 4.5	15.7	17.4	12.8	16.1	10.1	15.8	14.8
4.5 ≤ E < 4.7	15.5	17.1	12.5	15.9	9.9	15.5	14.6
4.7 ≤ E < 4.9	15.2	16.9	12.3	15.6	9.8	15.3	14.4
E ≥ 4.9	15.0	16.7	12.1	15.4	9.6	15.1	14.2

Table B2-24 Loading Table for BWR Fuel – 360 W/Assembly (continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	58 < Assembly Average Burnup ≤ 59 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	18.7	20.4	15.7	19.2	12.6	18.9	17.8
3.3 ≤ E < 3.5	18.4	20.0	15.2	18.8	12.2	18.4	17.4
3.5 ≤ E < 3.7	18.0	19.7	14.9	18.4	11.9	18.1	17.1
3.7 ≤ E < 3.9	17.6	19.3	14.5	18.1	11.6	17.7	16.7
3.9 ≤ E < 4.1	17.2	18.9	14.1	17.7	11.2	17.3	16.3
4.1 ≤ E < 4.3	16.9	18.7	13.8	17.4	11.0	17.1	16.1
4.3 ≤ E < 4.5	16.6	18.4	13.6	17.1	10.8	16.8	15.7
4.5 ≤ E < 4.7	16.4	18.0	13.3	16.9	10.6	16.5	15.5
4.7 ≤ E < 4.9	16.1	17.8	13.1	16.6	10.3	16.2	15.3
E ≥ 4.9	15.9	17.6	12.9	16.3	10.2	15.9	15.1
Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	59 < Assembly Average Burnup ≤ 60 GWd/MTU						
	Minimum Cooling Time (years)						
	BWR/2-3 7×7	BWR/4-6 7×7	BWR/2-3 8×8	BWR/4-6 8×8	BWR/2-3 9×9	BWR/4-6 9×9	BWR/4-6 10×10
2.1 ≤ E < 2.3	-	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-	-
2.9 ≤ E < 3.1	-	-	-	-	-	-	-
3.1 ≤ E < 3.3	-	-	-	-	-	-	-
3.3 ≤ E < 3.5	19.3	21.0	16.0	19.7	12.9	19.5	18.4
3.5 ≤ E < 3.7	18.9	20.7	15.6	19.3	12.7	19.1	17.9
3.7 ≤ E < 3.9	18.6	20.3	15.2	19.0	12.3	18.7	17.7
3.9 ≤ E < 4.1	18.2	19.9	14.9	18.7	11.9	18.3	17.3
4.1 ≤ E < 4.3	17.9	19.7	14.5	18.3	11.6	17.9	17.0
4.3 ≤ E < 4.5	17.6	19.4	14.2	18.1	11.4	17.7	16.6
4.5 ≤ E < 4.7	17.3	19.1	14.0	17.7	11.2	17.5	16.4
4.7 ≤ E < 4.9	17.1	18.8	13.8	17.6	11.0	17.2	16.1
E ≥ 4.9	16.9	18.6	13.6	17.3	10.8	16.9	15.9

Table B2-25 Loading Table for PWR Fuel – 959 W/Assembly – WE 14x14 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	B ≤10	10< B ≤15	15< B ≤20	20< B ≤25	25< B ≤30	30< B ≤32.5
1.3 ≤ E < 1.5	2.5	-	-	-	-	-
1.5 ≤ E < 1.7	2.5	2.5	-	-	-	-
1.7 ≤ E < 1.9	2.5	2.5	2.9	-	-	-
1.9 ≤ E < 2.1	2.5	2.5	2.9	3.4	-	-
2.1 ≤ E < 2.3	2.5	2.5	2.8	3.3	3.9	4.1
2.3 ≤ E < 2.5	2.5	2.5	2.8	3.3	3.8	4.1
2.5 ≤ E < 2.7	2.5	2.5	2.8	3.3	3.8	4.0
2.7 ≤ E < 2.9	2.5	2.5	2.8	3.2	3.7	4.0
2.9 ≤ E < 3.1	2.5	2.5	2.7	3.2	3.7	3.9
3.1 ≤ E < 3.3	2.5	2.5	2.7	3.2	3.7	3.9
3.3 ≤ E < 3.5	2.5	2.5	2.7	3.2	3.6	3.9
3.5 ≤ E < 3.7	2.5	2.5	2.7	3.1	3.6	3.8
3.7 ≤ E < 3.9	2.5	2.5	2.7	3.1	3.6	3.8
3.9 ≤ E < 4.1	2.5	2.5	2.6	3.1	3.6	3.8
4.1 ≤ E < 4.3	2.5	2.5	2.6	3.1	3.5	3.8
4.3 ≤ E < 4.5	2.5	2.5	2.6	3.0	3.5	3.7
4.5 ≤ E < 4.7	2.5	2.5	2.6	3.0	3.5	3.7
4.7 ≤ E < 4.9	2.5	2.5	2.6	3.0	3.5	3.7
E ≥ 4.9	2.5	2.5	2.6	3.0	3.5	3.7

Table B2-25 Loading Table for PWR Fuel – 959 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	32.5< B ≤35	35< B ≤37.5	37.5< B ≤40	40< B ≤41	41< B ≤42	42< B ≤43
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	4.4	4.8	-	-	-	-
2.5 ≤ E < 2.7	4.4	4.7	5.2	5.4	5.6	5.8
2.7 ≤ E < 2.9	4.3	4.7	5.1	5.3	5.5	5.7
2.9 ≤ E < 3.1	4.3	4.6	5.0	5.2	5.4	5.6
3.1 ≤ E < 3.3	4.2	4.5	4.9	5.1	5.3	5.6
3.3 ≤ E < 3.5	4.2	4.5	4.9	5.1	5.3	5.5
3.5 ≤ E < 3.7	4.1	4.5	4.8	5.0	5.2	5.4
3.7 ≤ E < 3.9	4.1	4.4	4.8	4.9	5.1	5.3
3.9 ≤ E < 4.1	4.1	4.4	4.8	4.9	5.1	5.3
4.1 ≤ E < 4.3	4.0	4.4	4.7	4.9	5.0	5.2
4.3 ≤ E < 4.5	4.0	4.3	4.7	4.8	5.0	5.2
4.5 ≤ E < 4.7	4.0	4.3	4.6	4.8	4.9	5.1
4.7 ≤ E < 4.9	4.0	4.3	4.6	4.7	4.9	5.0
E ≥ 4.9	3.9	4.2	4.5	4.7	4.9	5.0

Table B2-25 Loading Table for PWR Fuel – 959 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU	
	43< B ≤44	44< B ≤45 ^j
1.3 ≤ E < 1.5	-	-
1.5 ≤ E < 1.7	-	-
1.7 ≤ E < 1.9	-	-
1.9 ≤ E < 2.1	-	-
2.1 ≤ E < 2.3	-	-
2.3 ≤ E < 2.5	-	-
2.5 ≤ E < 2.7	6.0	-
2.7 ≤ E < 2.9	5.9	6.2
2.9 ≤ E < 3.1	5.8	6.0
3.1 ≤ E < 3.3	5.8	6.0
3.3 ≤ E < 3.5	5.7	5.9
3.5 ≤ E < 3.7	5.6	5.8
3.7 ≤ E < 3.9	5.6	5.8
3.9 ≤ E < 4.1	5.5	5.7
4.1 ≤ E < 4.3	5.4	5.6
4.3 ≤ E < 4.5	5.4	5.6
4.5 ≤ E < 4.7	5.3	5.5
4.7 ≤ E < 4.9	5.3	5.5
E ≥ 4.9	5.2	5.4

^j Cool times for burnup over 45 GWd/MTU are in Table B2-16

Table B2-26 Loading Table for PWR Fuel – 513 W/Assembly – WE 14x14 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	B ≤10	10< B ≤15	15< B ≤20	20< B ≤25	25< B ≤30	30< B ≤32.5
1.3 ≤ E < 1.5	2.9	-	-	-	-	-
1.5 ≤ E < 1.7	2.9	3.8	-	-	-	-
1.7 ≤ E < 1.9	2.9	3.7	4.5	-	-	-
1.9 ≤ E < 2.1	2.9	3.7	4.5	5.7	-	-
2.1 ≤ E < 2.3	2.8	3.7	4.5	5.7	7.5	8.9
2.3 ≤ E < 2.5	2.8	3.6	4.4	5.6	7.4	8.8
2.5 ≤ E < 2.7	2.8	3.6	4.4	5.6	7.3	8.6
2.7 ≤ E < 2.9	2.8	3.6	4.4	5.5	7.2	8.5
2.9 ≤ E < 3.1	2.8	3.5	4.4	5.5	7.1	8.5
3.1 ≤ E < 3.3	2.8	3.5	4.3	5.5	7.1	8.4
3.3 ≤ E < 3.5	2.8	3.5	4.3	5.4	7.0	8.3
3.5 ≤ E < 3.7	2.7	3.5	4.3	5.4	7.0	8.2
3.7 ≤ E < 3.9	2.7	3.5	4.3	5.4	7.0	8.1
3.9 ≤ E < 4.1	2.7	3.5	4.3	5.3	6.9	8.1
4.1 ≤ E < 4.3	2.7	3.5	4.2	5.3	6.9	8.0
4.3 ≤ E < 4.5	2.7	3.5	4.2	5.3	6.8	8.0
4.5 ≤ E < 4.7	2.7	3.5	4.2	5.2	6.8	7.9
4.7 ≤ E < 4.9	2.7	3.4	4.2	5.2	6.8	7.9
E ≥ 4.9	2.7	3.4	4.2	5.2	6.8	7.9

Table B2-26 Loading Table for PWR Fuel – 513 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	32.5< B ≤35	35< B ≤37.5	37.5< B ≤40	40< B ≤41	41< B ≤42	42< B ≤43
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	10.9	13.7	-	-	-	-
2.5 ≤ E < 2.7	10.7	13.5	16.9	18.2	19.7	21.2
2.7 ≤ E < 2.9	10.5	13.3	16.5	18.0	19.4	20.8
2.9 ≤ E < 3.1	10.4	13.1	16.3	17.7	19.2	20.6
3.1 ≤ E < 3.3	10.2	12.8	16.0	17.5	18.9	20.4
3.3 ≤ E < 3.5	10.1	12.7	15.9	17.2	18.7	20.1
3.5 ≤ E < 3.7	10.0	12.5	15.6	17.0	18.4	19.9
3.7 ≤ E < 3.9	9.9	12.4	15.5	16.8	18.2	19.6
3.9 ≤ E < 4.1	9.8	12.3	15.3	16.7	18.0	19.5
4.1 ≤ E < 4.3	9.8	12.1	15.2	16.5	17.9	19.3
4.3 ≤ E < 4.5	9.7	12.0	15.1	16.3	17.7	19.2
4.5 ≤ E < 4.7	9.7	11.9	15.0	16.2	17.6	19.0
4.7 ≤ E < 4.9	9.6	11.9	14.9	16.1	17.5	18.8
E ≥ 4.9	9.5	11.8	14.8	16.0	17.3	18.7

Table B2-26 Loading Table for PWR Fuel – 513 W/Assembly – WE 14x14 Fuel

(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU	
	43< B ≤44	44< B ≤45
1.3 ≤ E < 1.5	-	-
1.5 ≤ E < 1.7	-	-
1.7 ≤ E < 1.9	-	-
1.9 ≤ E < 2.1	-	-
2.1 ≤ E < 2.3	-	-
2.3 ≤ E < 2.5	-	-
2.5 ≤ E < 2.7	22.7	-
2.7 ≤ E < 2.9	22.3	23.8
2.9 ≤ E < 3.1	22.1	23.5
3.1 ≤ E < 3.3	21.8	23.2
3.3 ≤ E < 3.5	21.6	22.9
3.5 ≤ E < 3.7	21.3	22.7
3.7 ≤ E < 3.9	21.1	22.5
3.9 ≤ E < 4.1	20.9	22.3
4.1 ≤ E < 4.3	20.8	22.1
4.3 ≤ E < 4.5	20.6	21.9
4.5 ≤ E < 4.7	20.4	21.8
4.7 ≤ E < 4.9	20.3	21.6
E ≥ 4.9	20.1	21.5

Table B2-27 Loading Table for PWR Fuel – 1300 W/Assembly – WE 14x14 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	B ≤10	10< B ≤15	15< B ≤20	20< B ≤25	25< B ≤30	30< B ≤32.5
1.3 ≤ E < 1.5	2.5	-	-	-	-	-
1.5 ≤ E < 1.7	2.5	2.5	-	-	-	-
1.7 ≤ E < 1.9	2.5	2.5	2.5	-	-	-
1.9 ≤ E < 2.1	2.5	2.5	2.5	2.7	-	-
2.1 ≤ E < 2.3	2.5	2.5	2.5	2.6	3.0	3.2
2.3 ≤ E < 2.5	2.5	2.5	2.5	2.6	3.0	3.2
2.5 ≤ E < 2.7	2.5	2.5	2.5	2.6	3.0	3.1
2.7 ≤ E < 2.9	2.5	2.5	2.5	2.6	2.9	3.1
2.9 ≤ E < 3.1	2.5	2.5	2.5	2.5	2.9	3.0
3.1 ≤ E < 3.3	2.5	2.5	2.5	2.5	2.9	3.0
3.3 ≤ E < 3.5	2.5	2.5	2.5	2.5	2.9	3.0
3.5 ≤ E < 3.7	2.5	2.5	2.5	2.5	2.8	3.0
3.7 ≤ E < 3.9	2.5	2.5	2.5	2.5	2.8	3.0
3.9 ≤ E < 4.1	2.5	2.5	2.5	2.5	2.8	2.9
4.1 ≤ E < 4.3	2.5	2.5	2.5	2.5	2.8	2.9
4.3 ≤ E < 4.5	2.5	2.5	2.5	2.5	2.8	2.9
4.5 ≤ E < 4.7	2.5	2.5	2.5	2.5	2.7	2.9
4.7 ≤ E < 4.9	2.5	2.5	2.5	2.5	2.7	2.9
E ≥ 4.9	2.5	2.5	2.5	2.5	2.7	2.8

Table B2-27 Loading Table for PWR Fuel – 1300 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	32.5< B ≤35	35< B ≤37.5	37.5< B ≤40	40< B ≤41	41< B ≤42	42< B ≤43
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	3.4	3.6	-	-	-	-
2.5 ≤ E < 2.7	3.3	3.6	3.8	3.9	4.0	4.1
2.7 ≤ E < 2.9	3.3	3.5	3.8	3.9	4.0	4.1
2.9 ≤ E < 3.1	3.3	3.5	3.7	3.8	3.9	4.0
3.1 ≤ E < 3.3	3.2	3.4	3.7	3.8	3.9	4.0
3.3 ≤ E < 3.5	3.2	3.4	3.6	3.7	3.8	3.9
3.5 ≤ E < 3.7	3.2	3.4	3.6	3.7	3.8	3.9
3.7 ≤ E < 3.9	3.1	3.4	3.6	3.6	3.8	3.9
3.9 ≤ E < 4.1	3.1	3.3	3.5	3.6	3.7	3.8
4.1 ≤ E < 4.3	3.1	3.3	3.5	3.6	3.7	3.8
4.3 ≤ E < 4.5	3.0	3.3	3.5	3.6	3.6	3.8
4.5 ≤ E < 4.7	3.0	3.2	3.4	3.5	3.6	3.7
4.7 ≤ E < 4.9	3.0	3.2	3.4	3.5	3.6	3.7
E ≥ 4.9	3.0	3.2	3.4	3.5	3.5	3.7

Table B2-27 Loading Table for PWR Fuel – 1300 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU	
	43 < B ≤ 44	44 < B ≤ 45
1.3 ≤ E < 1.5	-	-
1.5 ≤ E < 1.7	-	-
1.7 ≤ E < 1.9	-	-
1.9 ≤ E < 2.1	-	-
2.1 ≤ E < 2.3	-	-
2.3 ≤ E < 2.5	-	-
2.5 ≤ E < 2.7	4.3	-
2.7 ≤ E < 2.9	4.2	4.3
2.9 ≤ E < 3.1	4.2	4.3
3.1 ≤ E < 3.3	4.1	4.2
3.3 ≤ E < 3.5	4.0	4.2
3.5 ≤ E < 3.7	4.0	4.1
3.7 ≤ E < 3.9	4.0	4.0
3.9 ≤ E < 4.1	3.9	4.0
4.1 ≤ E < 4.3	3.9	4.0
4.3 ≤ E < 4.5	3.8	3.9
4.5 ≤ E < 4.7	3.9	3.9
4.7 ≤ E < 4.9	3.8	3.9
E ≥ 4.9	3.8	3.8

Table B2-28 Loading Table for PWR Fuel – 1800 W/Assembly – WE 14x14 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	B ≤10	10< B ≤15	15< B ≤20	20< B ≤25	25< B ≤30	30< B ≤32.5
1.3 ≤ E < 1.5	2.5	-	-	-	-	-
1.5 ≤ E < 1.7	2.5	2.5	-	-	-	-
1.7 ≤ E < 1.9	2.5	2.5	2.5	-	-	-
1.9 ≤ E < 2.1	2.5	2.5	2.5	2.5	-	-
2.1 ≤ E < 2.3	2.5	2.5	2.5	2.5	2.5	2.5
2.3 ≤ E < 2.5	2.5	2.5	2.5	2.5	2.5	2.5
2.5 ≤ E < 2.7	2.5	2.5	2.5	2.5	2.5	2.5
2.7 ≤ E < 2.9	2.5	2.5	2.5	2.5	2.5	2.5
2.9 ≤ E < 3.1	2.5	2.5	2.5	2.5	2.5	2.5
3.1 ≤ E < 3.3	2.5	2.5	2.5	2.5	2.5	2.5
3.3 ≤ E < 3.5	2.5	2.5	2.5	2.5	2.5	2.5
3.5 ≤ E < 3.7	2.5	2.5	2.5	2.5	2.5	2.5
3.7 ≤ E < 3.9	2.5	2.5	2.5	2.5	2.5	2.5
3.9 ≤ E < 4.1	2.5	2.5	2.5	2.5	2.5	2.5
4.1 ≤ E < 4.3	2.5	2.5	2.5	2.5	2.5	2.5
4.3 ≤ E < 4.5	2.5	2.5	2.5	2.5	2.5	2.5
4.5 ≤ E < 4.7	2.5	2.5	2.5	2.5	2.5	2.5
4.7 ≤ E < 4.9	2.5	2.5	2.5	2.5	2.5	2.5
E ≥ 4.9	2.5	2.5	2.5	2.5	2.5	2.5

Table B2-28 Loading Table for PWR Fuel – 1800 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	32.5 < B ≤35	35 < B ≤37.5	37.5 < B ≤40	40 < B ≤41	41 < B ≤42	42 < B ≤43
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	2.6	2.7	-	-	-	-
2.5 ≤ E < 2.7	2.5	2.7	2.9	2.9	3.0	3.1
2.7 ≤ E < 2.9	2.5	2.7	2.8	2.9	3.0	3.0
2.9 ≤ E < 3.1	2.5	2.6	2.8	2.9	2.9	3.0
3.1 ≤ E < 3.3	2.5	2.6	2.8	2.8	2.9	3.0
3.3 ≤ E < 3.5	2.5	2.6	2.7	2.8	2.9	2.9
3.5 ≤ E < 3.7	2.5	2.5	2.7	2.8	2.8	2.9
3.7 ≤ E < 3.9	2.5	2.5	2.7	2.7	2.8	2.9
3.9 ≤ E < 4.1	2.5	2.5	2.6	2.7	2.8	2.8
4.1 ≤ E < 4.3	2.5	2.5	2.6	2.7	2.8	2.8
4.3 ≤ E < 4.5	2.5	2.5	2.6	2.7	2.7	2.8
4.5 ≤ E < 4.7	2.5	2.5	2.6	2.6	2.7	2.8
4.7 ≤ E < 4.9	2.5	2.5	2.5	2.6	2.7	2.7
E ≥ 4.9	2.5	2.5	2.5	2.6	2.6	2.7

Table B2-28 Loading Table for PWR Fuel – 1800 W/Assembly – WE 14x14 Fuel

(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU	
	43< B ≤44	44< B ≤45
1.3 ≤ E < 1.5	-	-
1.5 ≤ E < 1.7	-	-
1.7 ≤ E < 1.9	-	-
1.9 ≤ E < 2.1	-	-
2.1 ≤ E < 2.3	-	-
2.3 ≤ E < 2.5	-	-
2.5 ≤ E < 2.7	3.1	-
2.7 ≤ E < 2.9	3.1	3.2
2.9 ≤ E < 3.1	3.1	3.1
3.1 ≤ E < 3.3	3.0	3.1
3.3 ≤ E < 3.5	3.0	3.1
3.5 ≤ E < 3.7	3.0	3.0
3.7 ≤ E < 3.9	2.9	3.0
3.9 ≤ E < 4.1	2.9	3.0
4.1 ≤ E < 4.3	2.9	2.9
4.3 ≤ E < 4.5	2.8	2.9
4.5 ≤ E < 4.7	2.9	2.9
4.7 ≤ E < 4.9	2.8	2.9
E ≥ 4.9	2.8	2.8

Table B2-29 Loading Table for PWR Fuel – 830 W/Assembly – WE 14x14 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	B ≤10	10< B ≤15	15< B ≤20	20< B ≤25	25< B ≤30	30< B ≤32.5
1.3 ≤ E < 1.5	2.5	-	-	-	-	-
1.5 ≤ E < 1.7	2.5	2.7	-	-	-	-
1.7 ≤ E < 1.9	2.5	2.7	3.2	-	-	-
1.9 ≤ E < 2.1	2.5	2.7	3.2	3.8	-	-
2.1 ≤ E < 2.3	2.5	2.6	3.1	3.7	4.4	4.7
2.3 ≤ E < 2.5	2.5	2.6	3.1	3.7	4.3	4.6
2.5 ≤ E < 2.7	2.5	2.6	3.1	3.6	4.3	4.6
2.7 ≤ E < 2.9	2.5	2.6	3.0	3.6	4.2	4.5
2.9 ≤ E < 3.1	2.5	2.5	3.0	3.6	4.2	4.5
3.1 ≤ E < 3.3	2.5	2.5	3.0	3.5	4.2	4.5
3.3 ≤ E < 3.5	2.5	2.5	3.0	3.5	4.1	4.4
3.5 ≤ E < 3.7	2.5	2.5	3.0	3.5	4.1	4.4
3.7 ≤ E < 3.9	2.5	2.5	3.0	3.5	4.0	4.4
3.9 ≤ E < 4.1	2.5	2.5	2.9	3.5	4.0	4.3
4.1 ≤ E < 4.3	2.5	2.5	2.9	3.4	4.0	4.3
4.3 ≤ E < 4.5	2.5	2.5	2.9	3.4	4.0	4.3
4.5 ≤ E < 4.7	2.5	2.5	2.9	3.4	4.0	4.2
4.7 ≤ E < 4.9	2.5	2.5	2.9	3.4	3.9	4.2
E ≥ 4.9	2.5	2.5	2.9	3.4	3.9	4.2

Table B2-29 Loading Table for PWR Fuel – 830 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	32.5 < B ≤35	35 < B ≤37.5	37.5 < B ≤40	40 < B ≤41	41 < B ≤42	42 < B ≤43
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	5.1	5.6	-	-	-	-
2.5 ≤ E < 2.7	5.0	5.6	6.1	6.4	6.8	7.1
2.7 ≤ E < 2.9	5.0	5.5	6.0	6.3	6.6	6.9
2.9 ≤ E < 3.1	4.9	5.4	6.0	6.2	6.5	6.8
3.1 ≤ E < 3.3	4.9	5.4	5.9	6.1	6.4	6.7
3.3 ≤ E < 3.5	4.8	5.3	5.8	6.0	6.3	6.6
3.5 ≤ E < 3.7	4.8	5.2	5.8	6.0	6.3	6.6
3.7 ≤ E < 3.9	4.7	5.2	5.7	5.9	6.2	6.5
3.9 ≤ E < 4.1	4.7	5.1	5.7	5.9	6.1	6.4
4.1 ≤ E < 4.3	4.6	5.1	5.6	5.8	6.0	6.3
4.3 ≤ E < 4.5	4.6	5.0	5.6	5.8	6.0	6.2
4.5 ≤ E < 4.7	4.6	5.0	5.5	5.7	5.9	6.2
4.7 ≤ E < 4.9	4.5	5.0	5.5	5.7	5.9	6.1
E ≥ 4.9	4.5	4.9	5.4	5.6	5.9	6.0

Table B2-29 Loading Table for PWR Fuel – 830 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU	
	43< B ≤44	44< B ≤45
1.3 ≤ E < 1.5	-	-
1.5 ≤ E < 1.7	-	-
1.7 ≤ E < 1.9	-	-
1.9 ≤ E < 2.1	-	-
2.1 ≤ E < 2.3	-	-
2.3 ≤ E < 2.5	-	-
2.5 ≤ E < 2.7	7.5	-
2.7 ≤ E < 2.9	7.3	7.7
2.9 ≤ E < 3.1	7.2	7.6
3.1 ≤ E < 3.3	7.0	7.5
3.3 ≤ E < 3.5	6.9	7.3
3.5 ≤ E < 3.7	6.8	7.2
3.7 ≤ E < 3.9	6.8	7.1
3.9 ≤ E < 4.1	6.7	7.0
4.1 ≤ E < 4.3	6.6	6.9
4.3 ≤ E < 4.5	6.6	6.8
4.5 ≤ E < 4.7	6.5	6.8
4.7 ≤ E < 4.9	6.4	6.7
E ≥ 4.9	6.4	6.7

Note: For fuel assembly average burnup greater than 45 GWd/MTU, cool time tables have been revised to account for a 5% margin in heat load.

Table B2-30 Loading Table for PWR Fuel – 487 W/Assembly – WE 14x14 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	45< B ≤46	46< B ≤47	47< B ≤48	48< B ≤49	49< B ≤50	50< B ≤51
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	27.9	29.3	30.7	32.0	-	-
2.9 ≤ E < 3.1	27.6	29.0	30.4	31.8	32.7	33.9
3.1 ≤ E < 3.3	27.4	28.8	30.2	31.6	32.4	33.7
3.3 ≤ E < 3.5	27.1	28.5	30.0	31.4	32.2	33.6
3.5 ≤ E < 3.7	26.9	28.3	29.7	31.1	32.0	33.3
3.7 ≤ E < 3.9	26.7	28.1	29.5	30.9	31.8	33.1
3.9 ≤ E < 4.1	26.6	27.9	29.4	30.8	31.6	32.9
4.1 ≤ E < 4.3	26.3	27.8	29.2	30.6	31.4	33.5
4.3 ≤ E < 4.5	26.1	27.5	29.0	30.3	31.2	32.6
4.5 ≤ E < 4.7	26.0	27.4	28.8	30.2	31.1	32.4
4.7 ≤ E < 4.9	25.9	27.3	28.6	30.1	30.9	32.3
E ≥ 4.9	25.8	27.1	28.5	30.0	30.8	32.1

Table B2-30 Loading Table for PWR Fuel – 487 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	51< B ≤52	52< B ≤53	53< B ≤54	54< B ≤55	55< B ≤56	56< B ≤57
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-
2.9 ≤ E < 3.1	35.2	36.4	37.7	-	-	-
3.1 ≤ E < 3.3	35.0	36.2	37.4	38.8	39.8	41.0
3.3 ≤ E < 3.5	34.8	36.0	37.2	38.5	39.6	40.9
3.5 ≤ E < 3.7	34.5	35.9	37.1	38.4	39.5	40.7
3.7 ≤ E < 3.9	34.3	35.6	36.9	38.2	39.4	40.5
3.9 ≤ E < 4.1	34.2	35.4	36.7	38.1	39.2	40.4
4.1 ≤ E < 4.3	34.1	35.2	36.6	37.9	39.2	40.2
4.3 ≤ E < 4.5	33.9	35.2	36.4	37.7	39.0	40.2
4.5 ≤ E < 4.7	33.7	35.0	36.3	37.6	38.8	40.0
4.7 ≤ E < 4.9	33.5	34.8	36.1	37.4	38.7	39.8
E ≥ 4.9	33.4	34.7	35.9	37.3	38.6	39.7

Table B2-30 Loading Table for PWR Fuel – 487 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU		
	57< B ≤58	58< B ≤59	59< B ≤60
1.3 ≤ E < 1.5	-	-	-
1.5 ≤ E < 1.7	-	-	-
1.7 ≤ E < 1.9	-	-	-
1.9 ≤ E < 2.1	-	-	-
2.1 ≤ E < 2.3	-	-	-
2.3 ≤ E < 2.5	-	-	-
2.5 ≤ E < 2.7	-	-	-
2.7 ≤ E < 2.9	-	-	-
2.9 ≤ E < 3.1	-	-	-
3.1 ≤ E < 3.3	42.1	43.3	-
3.3 ≤ E < 3.5	42.0	43.1	44.1
3.5 ≤ E < 3.7	41.9	43.0	44.1
3.7 ≤ E < 3.9	41.7	42.9	43.9
3.9 ≤ E < 4.1	41.6	42.7	43.8
4.1 ≤ E < 4.3	41.5	42.6	43.7
4.3 ≤ E < 4.5	41.3	42.5	43.6
4.5 ≤ E < 4.7	41.2	42.4	43.5
4.7 ≤ E < 4.9	41.0	42.3	43.4
E ≥ 4.9	40.9	42.1	43.3

Table B2-31 Loading Table for PWR Fuel – 1235 W/Assembly – WE 14x14 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	45< B ≤46	46< B ≤47	47< B ≤48	48< B ≤49	49< B ≤50	50< B ≤51
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	4.7	4.9	5.0	5.2	-	-
2.9 ≤ E < 3.1	4.6	4.8	4.9	5.1	5.2	5.4
3.1 ≤ E < 3.3	4.6	4.7	4.9	5.0	5.1	5.3
3.3 ≤ E < 3.5	4.5	4.6	4.8	4.9	5.0	5.2
3.5 ≤ E < 3.7	4.5	4.6	4.7	4.9	5.0	5.2
3.7 ≤ E < 3.9	4.4	4.5	4.7	4.8	4.9	5.1
3.9 ≤ E < 4.1	4.4	4.5	4.6	4.8	4.9	5.0
4.1 ≤ E < 4.3	4.3	4.4	4.5	4.7	4.8	4.9
4.3 ≤ E < 4.5	4.3	4.4	4.5	4.6	4.8	4.9
4.5 ≤ E < 4.7	4.2	4.3	4.5	4.6	4.7	4.8
4.7 ≤ E < 4.9	4.2	4.3	4.4	4.6	4.7	4.8
E ≥ 4.9	4.1	4.3	4.4	4.5	4.6	4.7

Table B2-31 Loading Table for PWR Fuel – 1235 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	51< B ≤52	52< B ≤53	53< B ≤54	54< B ≤55	55< B ≤56	56< B ≤57
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-
2.9 ≤ E < 3.1	5.6	5.8	6.0	-	-	-
3.1 ≤ E < 3.3	5.5	5.7	5.9	6.1	6.4	6.7
3.3 ≤ E < 3.5	5.4	5.6	5.8	6.0	6.3	6.5
3.5 ≤ E < 3.7	5.4	5.5	5.7	5.9	6.1	6.4
3.7 ≤ E < 3.9	5.3	5.5	5.6	5.8	6.0	6.3
3.9 ≤ E < 4.1	5.2	5.4	5.6	5.8	5.9	6.1
4.1 ≤ E < 4.3	5.1	5.3	5.5	5.7	5.9	6.0
4.3 ≤ E < 4.5	5.0	5.2	5.4	5.6	5.8	6.0
4.5 ≤ E < 4.7	5.0	5.1	5.3	5.5	5.7	5.9
4.7 ≤ E < 4.9	4.9	5.1	5.3	5.5	5.6	5.8
E ≥ 4.9	4.9	5.0	5.3	5.4	5.6	5.7

Table B2-31 Loading Table for PWR Fuel – 1235 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU		
	57< B ≤58	58< B ≤59	59< B ≤60
1.3 ≤ E < 1.5	-	-	-
1.5 ≤ E < 1.7	-	-	-
1.7 ≤ E < 1.9	-	-	-
1.9 ≤ E < 2.1	-	-	-
2.1 ≤ E < 2.3	-	-	-
2.3 ≤ E < 2.5	-	-	-
2.5 ≤ E < 2.7	-	-	-
2.7 ≤ E < 2.9	-	-	-
2.9 ≤ E < 3.1	-	-	-
3.1 ≤ E < 3.3	6.9	7.2	-
3.3 ≤ E < 3.5	6.8	7.0	7.4
3.5 ≤ E < 3.7	6.7	6.9	7.2
3.7 ≤ E < 3.9	6.5	6.8	7.0
3.9 ≤ E < 4.1	6.4	6.7	6.9
4.1 ≤ E < 4.3	6.3	6.5	6.8
4.3 ≤ E < 4.5	6.2	6.4	6.7
4.5 ≤ E < 4.7	6.1	6.3	6.6
4.7 ≤ E < 4.9	6.0	6.2	6.5
E ≥ 4.9	5.9	6.1	6.4

Table B2-32 Loading Table for PWR Fuel – 1710 W/Assembly – WE 14x14 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	45< B ≤46	46< B ≤47	47< B ≤48	48< B ≤49	49< B ≤50	50< B ≤51
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	3.4	3.5	3.6	3.7	-	-
2.9 ≤ E < 3.1	3.4	3.5	3.5	3.6	3.7	3.8
3.1 ≤ E < 3.3	3.3	3.4	3.5	3.6	3.6	3.7
3.3 ≤ E < 3.5	3.3	3.4	3.4	3.5	3.6	3.7
3.5 ≤ E < 3.7	3.3	3.3	3.4	3.5	3.5	3.6
3.7 ≤ E < 3.9	3.2	3.3	3.4	3.4	3.5	3.6
3.9 ≤ E < 4.1	3.2	3.3	3.3	3.4	3.5	3.5
4.1 ≤ E < 4.3	3.1	3.2	3.3	3.4	3.4	3.5
4.3 ≤ E < 4.5	3.1	3.2	3.3	3.3	3.4	3.5
4.5 ≤ E < 4.7	3.1	3.2	3.2	3.3	3.4	3.4
4.7 ≤ E < 4.9	3.0	3.1	3.2	3.3	3.4	3.4
E ≥ 4.9	3.0	3.1	3.2	3.2	3.3	3.4

Table B2-32 Loading Table for PWR Fuel – 1710 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	51< B ≤52	52< B ≤53	53< B ≤54	54< B ≤55	55< B ≤56	56< B ≤57
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-
2.9 ≤ E < 3.1	3.9	4.0	4.0	-	-	-
3.1 ≤ E < 3.3	3.8	3.9	4.0	4.1	4.2	4.3
3.3 ≤ E < 3.5	3.8	3.9	4.0	4.0	4.2	4.3
3.5 ≤ E < 3.7	3.7	3.8	3.9	4.0	4.1	4.2
3.7 ≤ E < 3.9	3.7	3.8	3.8	3.9	4.0	4.2
3.9 ≤ E < 4.1	3.6	3.7	3.8	3.9	4.0	4.1
4.1 ≤ E < 4.3	3.6	3.7	3.8	3.8	3.9	4.0
4.3 ≤ E < 4.5	3.5	3.6	3.7	3.8	3.9	4.0
4.5 ≤ E < 4.7	3.5	3.6	3.7	3.8	3.9	3.9
4.7 ≤ E < 4.9	3.5	3.5	3.6	3.7	3.8	3.9
E ≥ 4.9	3.4	3.5	3.6	3.7	3.8	3.9

Table B2-32 Loading Table for PWR Fuel – 1710 W/Assembly – WE 14x14 Fuel

(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU		
	57< B ≤58	58< B ≤59	59< B ≤60
1.3 ≤ E < 1.5	-	-	-
1.5 ≤ E < 1.7	-	-	-
1.7 ≤ E < 1.9	-	-	-
1.9 ≤ E < 2.1	-	-	-
2.1 ≤ E < 2.3	-	-	-
2.3 ≤ E < 2.5	-	-	-
2.5 ≤ E < 2.7	-	-	-
2.7 ≤ E < 2.9	-	-	-
2.9 ≤ E < 3.1	-	-	-
3.1 ≤ E < 3.3	4.4	4.6	-
3.3 ≤ E < 3.5	4.4	4.5	4.6
3.5 ≤ E < 3.7	4.3	4.4	4.5
3.7 ≤ E < 3.9	4.3	4.4	4.5
3.9 ≤ E < 4.1	4.2	4.3	4.4
4.1 ≤ E < 4.3	4.1	4.2	4.3
4.3 ≤ E < 4.5	4.1	4.2	4.3
4.5 ≤ E < 4.7	4.0	4.1	4.2
4.7 ≤ E < 4.9	4.0	4.1	4.2
E ≥ 4.9	3.9	4.0	4.1

Table B2-33 Loading Table for PWR Fuel – 788 W/Assembly – WE 14x14 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	45< B ≤46	46< B ≤47	47< B ≤48	48< B ≤49	49< B ≤50	50< B ≤51
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	9.0	9.7	10.4	11.2	-	-
2.9 ≤ E < 3.1	8.9	9.5	10.1	10.9	11.4	12.2
3.1 ≤ E < 3.3	8.7	9.2	9.9	10.6	11.1	11.9
3.3 ≤ E < 3.5	8.5	9.0	9.7	10.3	10.9	11.6
3.5 ≤ E < 3.7	8.4	8.9	9.5	10.1	10.6	11.4
3.7 ≤ E < 3.9	8.2	8.7	9.3	9.9	10.4	11.1
3.9 ≤ E < 4.1	8.1	8.6	9.1	9.7	10.2	10.9
4.1 ≤ E < 4.3	8.0	8.5	9.0	9.5	10.0	10.7
4.3 ≤ E < 4.5	7.9	8.4	8.8	9.4	9.8	10.5
4.5 ≤ E < 4.7	7.8	8.2	8.7	9.3	9.7	10.3
4.7 ≤ E < 4.9	7.7	8.1	8.6	9.1	9.5	10.2
E ≥ 4.9	7.6	8.0	8.5	9.0	9.4	10.0

Table B2-33 Loading Table for PWR Fuel – 788 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU					
	51< B ≤52	52< B ≤53	53< B ≤54	54< B ≤55	55< B ≤56	56< B ≤57
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-
2.9 ≤ E < 3.1	13.1	14.0	15.0	-	-	-
3.1 ≤ E < 3.3	12.8	13.6	14.6	15.6	16.6	17.7
3.3 ≤ E < 3.5	12.4	13.3	14.2	15.3	16.2	17.3
3.5 ≤ E < 3.7	12.1	13.0	13.9	14.9	15.9	16.9
3.7 ≤ E < 3.9	11.9	13.0	13.6	14.6	15.5	16.5
3.9 ≤ E < 4.1	11.6	12.5	13.3	14.2	15.2	16.2
4.1 ≤ E < 4.3	11.4	12.2	13.1	13.9	14.9	15.9
4.3 ≤ E < 4.5	11.3	11.9	12.8	13.7	14.7	15.6
4.5 ≤ E < 4.7	11.1	11.8	12.6	13.5	14.4	15.3
4.7 ≤ E < 4.9	10.9	11.6	12.4	13.3	14.1	15.1
E ≥ 4.9	10.7	11.5	12.6	13.1	13.9	14.8

Table B2-33 Loading Table for PWR Fuel – 788 W/Assembly – WE 14x14 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	WE 14x14 Assembly Average Burnup (B) GWd/MTU		
	57 < B ≤ 58	58 < B ≤ 59	59 < B ≤ 60
1.3 ≤ E < 1.5	-	-	-
1.5 ≤ E < 1.7	-	-	-
1.7 ≤ E < 1.9	-	-	-
1.9 ≤ E < 2.1	-	-	-
2.1 ≤ E < 2.3	-	-	-
2.3 ≤ E < 2.5	-	-	-
2.5 ≤ E < 2.7	-	-	-
2.7 ≤ E < 2.9	-	-	-
2.9 ≤ E < 3.1	-	-	-
3.1 ≤ E < 3.3	18.7	19.7	-
3.3 ≤ E < 3.5	18.2	19.3	20.4
3.5 ≤ E < 3.7	17.9	18.9	19.9
3.7 ≤ E < 3.9	17.5	18.6	19.6
3.9 ≤ E < 4.1	17.2	18.2	19.2
4.1 ≤ E < 4.3	16.9	17.9	18.9
4.3 ≤ E < 4.5	16.6	17.6	18.6
4.5 ≤ E < 4.7	16.3	17.3	18.3
4.7 ≤ E < 4.9	16.0	17.0	18.0
E ≥ 4.9	15.8	16.8	17.8

Table B2-34 Loading Table for PWR Fuel – 513 W/Assembly – CE 16x16 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	B ≤10	10< B ≤15	15< B ≤20	20< B ≤25	25< B ≤30	30< B ≤32.5
1.3 ≤ E < 1.5	4.0	-	-	-	-	-
1.5 ≤ E < 1.7	4.0	4.0	-	-	-	-
1.7 ≤ E < 1.9	4.0	4.0	4.9	-	-	-
1.9 ≤ E < 2.1	4.0	4.0	4.8	6.1	-	-
2.1 ≤ E < 2.3	4.0	4.0	4.8	6.0	8.2	10.0
2.3 ≤ E < 2.5	4.0	4.0	4.7	6.0	8.1	9.9
2.5 ≤ E < 2.7	4.0	4.0	4.7	6.0	8.1	9.8
2.7 ≤ E < 2.9	4.0	4.0	4.7	5.9	8.0	9.7
2.9 ≤ E < 3.1	4.0	4.0	4.6	5.9	7.9	9.6
3.1 ≤ E < 3.3	4.0	4.0	4.6	5.9	7.9	9.5
3.3 ≤ E < 3.5	4.0	4.0	4.6	5.8	7.9	9.4
3.5 ≤ E < 3.7	4.0	4.0	4.6	5.8	7.8	9.4
3.7 ≤ E < 3.9	4.0	4.0	4.5	5.8	7.8	9.3
3.9 ≤ E < 4.1	4.0	4.0	4.5	5.8	7.7	9.2
4.1 ≤ E < 4.3	4.0	4.0	4.5	5.8	7.7	9.2
4.3 ≤ E < 4.5	4.0	4.0	4.5	5.7	7.7	9.2
4.5 ≤ E < 4.7	4.0	4.0	4.5	5.7	7.6	9.1
4.7 ≤ E < 4.9	4.0	4.0	4.5	5.7	7.6	9.1
E ≥ 4.9	4.0	4.0	4.5	5.7	7.6	9.0

Table B2-34 Loading Table for PWR Fuel – 513 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	32.5< B ≤35	35< B ≤37.5	37.5< B ≤40	40< B ≤41	41< B ≤42	42< B ≤43
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	12.5	15.8	-	-	-	-
2.5 ≤ E < 2.7	12.3	15.6	19.2	20.7	22.2	23.7
2.7 ≤ E < 2.9	12.1	15.4	19.0	20.5	22.0	23.4
2.9 ≤ E < 3.1	12.0	15.2	18.8	20.2	21.7	23.2
3.1 ≤ E < 3.3	11.9	15.0	18.5	19.9	21.5	23.0
3.3 ≤ E < 3.5	11.8	14.8	18.4	19.8	21.3	22.8
3.5 ≤ E < 3.7	11.7	14.7	18.2	19.7	21.1	22.5
3.7 ≤ E < 3.9	11.7	14.6	18.0	19.5	20.9	22.3
3.9 ≤ E < 4.1	11.6	14.5	17.9	19.3	20.8	22.2
4.1 ≤ E < 4.3	11.5	14.4	17.8	19.2	20.7	22.1
4.3 ≤ E < 4.5	11.4	14.3	17.7	19.1	20.5	21.9
4.5 ≤ E < 4.7	11.4	14.3	17.6	19.0	20.4	21.8
4.7 ≤ E < 4.9	11.4	14.2	17.5	18.9	20.3	21.7
E ≥ 4.9	11.3	14.1	17.4	18.8	20.2	21.6

Table B2-34 Loading Table for PWR Fuel – 513 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU	
	43< B ≤44	44< B ≤45
1.3 ≤ E < 1.5	-	-
1.5 ≤ E < 1.7	-	-
1.7 ≤ E < 1.9	-	-
1.9 ≤ E < 2.1	-	-
2.1 ≤ E < 2.3	-	-
2.3 ≤ E < 2.5	-	-
2.5 ≤ E < 2.7	25.1	-
2.7 ≤ E < 2.9	24.8	26.3
2.9 ≤ E < 3.1	24.6	26.1
3.1 ≤ E < 3.3	24.4	25.8
3.3 ≤ E < 3.5	24.2	25.6
3.5 ≤ E < 3.7	24.0	25.4
3.7 ≤ E < 3.9	23.8	25.3
3.9 ≤ E < 4.1	23.7	25.0
4.1 ≤ E < 4.3	23.6	24.9
4.3 ≤ E < 4.5	23.4	24.8
4.5 ≤ E < 4.7	23.2	24.6
4.7 ≤ E < 4.9	23.1	24.5
E ≥ 4.9	23.0	24.4

Table B2-35 Loading Table for PWR Fuel – 1300 W/Assembly – CE 16x16 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	B ≤10	10< B ≤15	15< B ≤20	20< B ≤25	25< B ≤30	30< B ≤32.5
1.3 ≤ E < 1.5	4.0	-	-	-	-	-
1.5 ≤ E < 1.7	4.0	4.0	-	-	-	-
1.7 ≤ E < 1.9	4.0	4.0	4.0	-	-	-
1.9 ≤ E < 2.1	4.0	4.0	4.0	4.0	-	-
2.1 ≤ E < 2.3	4.0	4.0	4.0	4.0	4.0	4.0
2.3 ≤ E < 2.5	4.0	4.0	4.0	4.0	4.0	4.0
2.5 ≤ E < 2.7	4.0	4.0	4.0	4.0	4.0	4.0
2.7 ≤ E < 2.9	4.0	4.0	4.0	4.0	4.0	4.0
2.9 ≤ E < 3.1	4.0	4.0	4.0	4.0	4.0	4.0
3.1 ≤ E < 3.3	4.0	4.0	4.0	4.0	4.0	4.0
3.3 ≤ E < 3.5	4.0	4.0	4.0	4.0	4.0	4.0
3.5 ≤ E < 3.7	4.0	4.0	4.0	4.0	4.0	4.0
3.7 ≤ E < 3.9	4.0	4.0	4.0	4.0	4.0	4.0
3.9 ≤ E < 4.1	4.0	4.0	4.0	4.0	4.0	4.0
4.1 ≤ E < 4.3	4.0	4.0	4.0	4.0	4.0	4.0
4.3 ≤ E < 4.5	4.0	4.0	4.0	4.0	4.0	4.0
4.5 ≤ E < 4.7	4.0	4.0	4.0	4.0	4.0	4.0
4.7 ≤ E < 4.9	4.0	4.0	4.0	4.0	4.0	4.0
E ≥ 4.9	4.0	4.0	4.0	4.0	4.0	4.0

Table B2-35 Loading Table for PWR Fuel – 1300 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	32.5< B ≤35	35< B ≤37.5	37.5< B ≤40	40< B ≤41	41< B ≤42	42< B ≤43
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	4.0	4.0	-	-	-	-
2.5 ≤ E < 2.7	4.0	4.0	4.1	4.2	4.3	4.5
2.7 ≤ E < 2.9	4.0	4.0	4.1	4.2	4.3	4.4
2.9 ≤ E < 3.1	4.0	4.0	4.0	4.1	4.2	4.4
3.1 ≤ E < 3.3	4.0	4.0	4.0	4.1	4.2	4.3
3.3 ≤ E < 3.5	4.0	4.0	4.0	4.0	4.1	4.3
3.5 ≤ E < 3.7	4.0	4.0	4.0	4.0	4.1	4.2
3.7 ≤ E < 3.9	4.0	4.0	4.0	4.0	4.0	4.2
3.9 ≤ E < 4.1	4.0	4.0	4.0	4.0	4.0	4.1
4.1 ≤ E < 4.3	4.0	4.0	4.0	4.0	4.0	4.1
4.3 ≤ E < 4.5	4.0	4.0	4.0	4.0	4.0	4.0
4.5 ≤ E < 4.7	4.0	4.0	4.0	4.0	4.0	4.0
4.7 ≤ E < 4.9	4.0	4.0	4.0	4.0	4.0	4.0
E ≥ 4.9	4.0	4.0	4.0	4.0	4.0	4.0

Table B2-35 Loading Table for PWR Fuel – 1300 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU	
	43< B ≤44	44< B ≤45
1.3 ≤ E < 1.5	-	-
1.5 ≤ E < 1.7	-	-
1.7 ≤ E < 1.9	-	-
1.9 ≤ E < 2.1	-	-
2.1 ≤ E < 2.3	-	-
2.3 ≤ E < 2.5	-	-
2.5 ≤ E < 2.7	4.6	-
2.7 ≤ E < 2.9	4.5	4.7
2.9 ≤ E < 3.1	4.5	4.6
3.1 ≤ E < 3.3	4.4	4.5
3.3 ≤ E < 3.5	4.4	4.5
3.5 ≤ E < 3.7	4.3	4.4
3.7 ≤ E < 3.9	4.3	4.4
3.9 ≤ E < 4.1	4.2	4.3
4.1 ≤ E < 4.3	4.2	4.3
4.3 ≤ E < 4.5	4.2	4.3
4.5 ≤ E < 4.7	4.1	4.2
4.7 ≤ E < 4.9	4.1	4.2
E ≥ 4.9	4.0	4.2

Table B2-36 Loading Table for PWR Fuel – 1800 W/Assembly – CE 16x16 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	B ≤10	10< B ≤15	15< B ≤20	20< B ≤25	25< B ≤30	30< B ≤32.5
1.3 ≤ E < 1.5	4.0	-	-	-	-	-
1.5 ≤ E < 1.7	4.0	4.0	-	-	-	-
1.7 ≤ E < 1.9	4.0	4.0	4.0	-	-	-
1.9 ≤ E < 2.1	4.0	4.0	4.0	4.0	-	-
2.1 ≤ E < 2.3	4.0	4.0	4.0	4.0	4.0	4.0
2.3 ≤ E < 2.5	4.0	4.0	4.0	4.0	4.0	4.0
2.5 ≤ E < 2.7	4.0	4.0	4.0	4.0	4.0	4.0
2.7 ≤ E < 2.9	4.0	4.0	4.0	4.0	4.0	4.0
2.9 ≤ E < 3.1	4.0	4.0	4.0	4.0	4.0	4.0
3.1 ≤ E < 3.3	4.0	4.0	4.0	4.0	4.0	4.0
3.3 ≤ E < 3.5	4.0	4.0	4.0	4.0	4.0	4.0
3.5 ≤ E < 3.7	4.0	4.0	4.0	4.0	4.0	4.0
3.7 ≤ E < 3.9	4.0	4.0	4.0	4.0	4.0	4.0
3.9 ≤ E < 4.1	4.0	4.0	4.0	4.0	4.0	4.0
4.1 ≤ E < 4.3	4.0	4.0	4.0	4.0	4.0	4.0
4.3 ≤ E < 4.5	4.0	4.0	4.0	4.0	4.0	4.0
4.5 ≤ E < 4.7	4.0	4.0	4.0	4.0	4.0	4.0
4.7 ≤ E < 4.9	4.0	4.0	4.0	4.0	4.0	4.0
E ≥ 4.9	4.0	4.0	4.0	4.0	4.0	4.0

Table B2-36 Loading Table for PWR Fuel – 1800 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	32.5< B ≤35	35< B ≤37.5	37.5< B ≤40	40< B ≤41	41< B ≤42	42< B ≤43
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	4.0	4.0	-	-	-	-
2.5 ≤ E < 2.7	4.0	4.0	4.0	4.0	4.0	4.0
2.7 ≤ E < 2.9	4.0	4.0	4.0	4.0	4.0	4.0
2.9 ≤ E < 3.1	4.0	4.0	4.0	4.0	4.0	4.0
3.1 ≤ E < 3.3	4.0	4.0	4.0	4.0	4.0	4.0
3.3 ≤ E < 3.5	4.0	4.0	4.0	4.0	4.0	4.0
3.5 ≤ E < 3.7	4.0	4.0	4.0	4.0	4.0	4.0
3.7 ≤ E < 3.9	4.0	4.0	4.0	4.0	4.0	4.0
3.9 ≤ E < 4.1	4.0	4.0	4.0	4.0	4.0	4.0
4.1 ≤ E < 4.3	4.0	4.0	4.0	4.0	4.0	4.0
4.3 ≤ E < 4.5	4.0	4.0	4.0	4.0	4.0	4.0
4.5 ≤ E < 4.7	4.0	4.0	4.0	4.0	4.0	4.0
4.7 ≤ E < 4.9	4.0	4.0	4.0	4.0	4.0	4.0
E ≥ 4.9	4.0	4.0	4.0	4.0	4.0	4.0

Table B2-36 Loading Table for PWR Fuel – 1800 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU	
	43< B ≤44	44< B ≤45
1.3 ≤ E < 1.5	-	-
1.5 ≤ E < 1.7	-	-
1.7 ≤ E < 1.9	-	-
1.9 ≤ E < 2.1	-	-
2.1 ≤ E < 2.3	-	-
2.3 ≤ E < 2.5	-	-
2.5 ≤ E < 2.7	4.0	-
2.7 ≤ E < 2.9	4.0	4.0
2.9 ≤ E < 3.1	4.0	4.0
3.1 ≤ E < 3.3	4.0	4.0
3.3 ≤ E < 3.5	4.0	4.0
3.5 ≤ E < 3.7	4.0	4.0
3.7 ≤ E < 3.9	4.0	4.0
3.9 ≤ E < 4.1	4.0	4.0
4.1 ≤ E < 4.3	4.0	4.0
4.3 ≤ E < 4.5	4.0	4.0
4.5 ≤ E < 4.7	4.0	4.0
4.7 ≤ E < 4.9	4.0	4.0
E ≥ 4.9	4.0	4.0

Table B2-37 Loading Table for PWR Fuel – 830 W/Assembly – CE 16x16 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	B ≤10	10< B ≤15	15< B ≤20	20< B ≤25	25< B ≤30	30< B ≤32.5
1.3 ≤ E < 1.5	4.0	-	-	-	-	-
1.5 ≤ E < 1.7	4.0	4.0	-	-	-	-
1.7 ≤ E < 1.9	4.0	4.0	4.0	-	-	-
1.9 ≤ E < 2.1	4.0	4.0	4.0	4.0	-	-
2.1 ≤ E < 2.3	4.0	4.0	4.0	4.0	4.7	5.0
2.3 ≤ E < 2.5	4.0	4.0	4.0	4.0	4.6	5.0
2.5 ≤ E < 2.7	4.0	4.0	4.0	4.0	4.6	4.9
2.7 ≤ E < 2.9	4.0	4.0	4.0	4.0	4.5	4.9
2.9 ≤ E < 3.1	4.0	4.0	4.0	4.0	4.5	4.8
3.1 ≤ E < 3.3	4.0	4.0	4.0	4.0	4.4	4.8
3.3 ≤ E < 3.5	4.0	4.0	4.0	4.0	4.4	4.7
3.5 ≤ E < 3.7	4.0	4.0	4.0	4.0	4.4	4.7
3.7 ≤ E < 3.9	4.0	4.0	4.0	4.0	4.4	4.7
3.9 ≤ E < 4.1	4.0	4.0	4.0	4.0	4.3	4.6
4.1 ≤ E < 4.3	4.0	4.0	4.0	4.0	4.3	4.6
4.3 ≤ E < 4.5	4.0	4.0	4.0	4.0	4.3	4.6
4.5 ≤ E < 4.7	4.0	4.0	4.0	4.0	4.3	4.5
4.7 ≤ E < 4.9	4.0	4.0	4.0	4.0	4.2	4.5
E ≥ 4.9	4.0	4.0	4.0	4.0	4.2	4.5

Table B2-37 Loading Table for PWR Fuel – 830 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	32.5< B ≤35	35< B ≤37.5	37.5< B ≤40	40< B ≤41	41< B ≤42	42< B ≤43
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	5.5	6.0	-	-	-	-
2.5 ≤ E < 2.7	5.4	6.0	6.7	7.0	7.4	7.8
2.7 ≤ E < 2.9	5.4	5.9	6.6	6.9	7.2	7.7
2.9 ≤ E < 3.1	5.3	5.8	6.5	6.8	7.1	7.5
3.1 ≤ E < 3.3	5.2	5.8	6.4	6.7	7.0	7.4
3.3 ≤ E < 3.5	5.2	5.7	6.3	6.6	6.9	7.3
3.5 ≤ E < 3.7	5.1	5.7	6.3	6.6	6.8	7.2
3.7 ≤ E < 3.9	5.1	5.6	6.2	6.5	6.8	7.1
3.9 ≤ E < 4.1	5.0	5.6	6.1	6.4	6.7	7.0
4.1 ≤ E < 4.3	5.0	5.5	6.0	6.4	6.7	6.9
4.3 ≤ E < 4.5	5.0	5.5	6.0	6.3	6.6	6.9
4.5 ≤ E < 4.7	4.9	5.5	6.0	6.2	6.5	6.8
4.7 ≤ E < 4.9	4.9	5.4	5.9	6.2	6.5	6.8
E ≥ 4.9	4.9	5.4	5.9	6.1	6.4	6.7

Table B2-37 Loading Table for PWR Fuel – 830 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU	
	43< B ≤44	44< B ≤45
1.3 ≤ E < 1.5	-	-
1.5 ≤ E < 1.7	-	-
1.7 ≤ E < 1.9	-	-
1.9 ≤ E < 2.1	-	-
2.1 ≤ E < 2.3	-	-
2.3 ≤ E < 2.5	-	-
2.5 ≤ E < 2.7	8.2	-
2.7 ≤ E < 2.9	8.0	8.6
2.9 ≤ E < 3.1	7.9	8.4
3.1 ≤ E < 3.3	7.8	8.2
3.3 ≤ E < 3.5	7.7	8.1
3.5 ≤ E < 3.7	7.6	8.0
3.7 ≤ E < 3.9	7.5	7.9
3.9 ≤ E < 4.1	7.4	7.8
4.1 ≤ E < 4.3	7.3	7.7
4.3 ≤ E < 4.5	7.2	7.6
4.5 ≤ E < 4.7	7.1	7.5
4.7 ≤ E < 4.9	7.0	7.4
E ≥ 4.9	7.0	7.4

Note: For fuel assembly average burnup greater than 45 GWd/MTU, cool time tables have been revised to account for a 5% margin in heat load.

Table B2-38 Loading Table for PWR Fuel – 487 W/Assembly – CE 16x16 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	45< B ≤46	46< B ≤47	47< B ≤48	48< B ≤49	49< B ≤50	50< B ≤51
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	30.4	31.8	33.2	34.5	-	-
2.9 ≤ E < 3.1	30.1	31.6	32.9	34.3	35.5	36.8
3.1 ≤ E < 3.3	30.0	31.4	32.7	34.1	35.4	36.7
3.3 ≤ E < 3.5	29.8	31.2	32.6	33.9	35.2	36.6
3.5 ≤ E < 3.7	29.6	31.1	32.5	33.8	35.1	36.3
3.7 ≤ E < 3.9	29.4	30.8	32.3	33.6	34.9	36.3
3.9 ≤ E < 4.1	29.3	30.7	32.1	33.5	34.7	36.1
4.1 ≤ E < 4.3	29.1	30.6	32.0	33.4	34.6	35.9
4.3 ≤ E < 4.5	29.0	30.4	31.9	33.2	34.5	35.9
4.5 ≤ E < 4.7	28.9	30.2	31.7	33.1	34.4	35.7
4.7 ≤ E < 4.9	28.8	30.2	31.5	33.0	34.3	35.6
E ≥ 4.9	28.7	30.1	31.4	32.8	34.2	35.4

Table B2-38 Loading Table for PWR Fuel – 487 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	51< B ≤52	52< B ≤53	53< B ≤54	54< B ≤55	55< B ≤56	56< B ≤57
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-
2.9 ≤ E < 3.1	38.1	39.3	40.5	-	-	-
3.1 ≤ E < 3.3	38.0	39.2	40.3	41.5	42.1	43.1
3.3 ≤ E < 3.5	37.8	39.1	40.2	41.4	41.9	43.1
3.5 ≤ E < 3.7	37.6	38.9	40.0	41.2	41.8	42.9
3.7 ≤ E < 3.9	37.6	38.7	39.9	41.1	41.7	42.8
3.9 ≤ E < 4.1	37.4	38.7	39.8	41.1	41.6	42.7
4.1 ≤ E < 4.3	37.3	38.6	39.7	40.9	41.4	42.6
4.3 ≤ E < 4.5	37.2	38.4	39.6	40.9	41.3	42.5
4.5 ≤ E < 4.7	37.0	38.2	39.4	40.8	41.2	42.4
4.7 ≤ E < 4.9	36.9	38.2	39.5	40.7	41.0	42.3
E ≥ 4.9	36.8	38.0	39.3	40.5	40.9	42.1

Table B2-38 Loading Table for PWR Fuel – 487 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU		
	57< B ≤58	58< B ≤59	59< B ≤60
1.3 ≤ E < 1.5	-	-	-
1.5 ≤ E < 1.7	-	-	-
1.7 ≤ E < 1.9	-	-	-
1.9 ≤ E < 2.1	-	-	-
2.1 ≤ E < 2.3	-	-	-
2.3 ≤ E < 2.5	-	-	-
2.5 ≤ E < 2.7	-	-	-
2.7 ≤ E < 2.9	-	-	-
2.9 ≤ E < 3.1	-	-	-
3.1 ≤ E < 3.3	44.3	45.3	-
3.3 ≤ E < 3.5	44.1	45.2	46.2
3.5 ≤ E < 3.7	44.0	45.1	46.2
3.7 ≤ E < 3.9	43.9	44.9	46.1
3.9 ≤ E < 4.1	43.8	44.9	46.0
4.1 ≤ E < 4.3	43.7	44.8	45.8
4.3 ≤ E < 4.5	43.7	44.7	45.8
4.5 ≤ E < 4.7	43.5	44.6	45.7
4.7 ≤ E < 4.9	43.4	44.5	45.7
E ≥ 4.9	43.4	44.4	45.6

Table B2-39 Loading Table for PWR Fuel – 1235 W/Assembly – CE 16x16 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	45< B ≤46	46< B ≤47	47< B ≤48	48< B ≤49	49< B ≤50	50< B ≤51
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	5.1	5.3	5.5	5.7	-	-
2.9 ≤ E < 3.1	5.0	5.2	5.4	5.6	5.8	6.0
3.1 ≤ E < 3.3	4.9	5.1	5.3	5.5	5.7	5.9
3.3 ≤ E < 3.5	4.9	5.0	5.2	5.4	5.6	5.8
3.5 ≤ E < 3.7	4.8	5.0	5.1	5.3	5.5	5.7
3.7 ≤ E < 3.9	4.8	4.9	5.0	5.2	5.4	5.6
3.9 ≤ E < 4.1	4.7	4.9	5.0	5.2	5.4	5.6
4.1 ≤ E < 4.3	4.7	4.8	4.9	5.1	5.3	5.5
4.3 ≤ E < 4.5	4.6	4.8	4.9	5.0	5.2	5.4
4.5 ≤ E < 4.7	4.5	4.7	4.8	5.0	5.1	5.3
4.7 ≤ E < 4.9	4.5	4.7	4.8	4.9	5.1	5.3
E ≥ 4.9	4.5	4.6	4.8	4.9	5.0	5.2

Table B2-39 Loading Table for PWR Fuel – 1235 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	51< B ≤52	52< B ≤53	53< B ≤54	54< B ≤55	55< B ≤56	56< B ≤57
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-
2.9 ≤ E < 3.1	6.2	6.5	6.7	-	-	-
3.1 ≤ E < 3.3	6.1	6.3	6.6	6.8	7.0	7.3
3.3 ≤ E < 3.5	6.0	6.2	6.5	6.7	6.9	7.1
3.5 ≤ E < 3.7	5.9	6.1	6.3	6.6	6.7	7.0
3.7 ≤ E < 3.9	5.8	6.0	6.2	6.5	6.6	6.9
3.9 ≤ E < 4.1	5.7	5.9	6.1	6.4	6.5	6.8
4.1 ≤ E < 4.3	5.7	5.8	6.0	6.3	6.4	6.7
4.3 ≤ E < 4.5	5.6	5.8	5.9	6.2	6.3	6.6
4.5 ≤ E < 4.7	5.5	5.7	5.9	6.0	6.2	6.4
4.7 ≤ E < 4.9	5.5	5.6	5.8	6.0	6.1	6.4
E ≥ 4.9	5.4	5.6	5.8	5.9	6.0	6.3

Table B2-39 Loading Table for PWR Fuel – 1235 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU		
	57< B ≤58	58< B ≤59	59< B ≤60
1.3 ≤ E < 1.5	-	-	-
1.5 ≤ E < 1.7	-	-	-
1.7 ≤ E < 1.9	-	-	-
1.9 ≤ E < 2.1	-	-	-
2.1 ≤ E < 2.3	-	-	-
2.3 ≤ E < 2.5	-	-	-
2.5 ≤ E < 2.7	-	-	-
2.7 ≤ E < 2.9	-	-	-
2.9 ≤ E < 3.1	-	-	-
3.1 ≤ E < 3.3	7.7	8.0	-
3.3 ≤ E < 3.5	7.5	7.8	8.2
3.5 ≤ E < 3.7	7.3	7.6	8.0
3.7 ≤ E < 3.9	7.1	7.5	7.8
3.9 ≤ E < 4.1	7.0	7.3	7.7
4.1 ≤ E < 4.3	6.9	7.2	7.5
4.3 ≤ E < 4.5	6.8	7.0	7.4
4.5 ≤ E < 4.7	6.7	6.9	7.2
4.7 ≤ E < 4.9	6.6	6.9	7.1
E ≥ 4.9	6.5	6.8	7.0

Table B2-40 Loading Table for PWR Fuel – 1710 W/Assembly – CE 16x16 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	45< B ≤46	46< B ≤47	47< B ≤48	48< B ≤49	49< B ≤50	50< B ≤51
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	4.0	4.0	4.0	4.0	-	-
2.9 ≤ E < 3.1	4.0	4.0	4.0	4.0	4.0	4.1
3.1 ≤ E < 3.3	4.0	4.0	4.0	4.0	4.0	4.1
3.3 ≤ E < 3.5	4.0	4.0	4.0	4.0	4.0	4.0
3.5 ≤ E < 3.7	4.0	4.0	4.0	4.0	4.0	4.0
3.7 ≤ E < 3.9	4.0	4.0	4.0	4.0	4.0	4.0
3.9 ≤ E < 4.1	4.0	4.0	4.0	4.0	4.0	4.0
4.1 ≤ E < 4.3	4.0	4.0	4.0	4.0	4.0	4.0
4.3 ≤ E < 4.5	4.0	4.0	4.0	4.0	4.0	4.0
4.5 ≤ E < 4.7	4.0	4.0	4.0	4.0	4.0	4.0
4.7 ≤ E < 4.9	4.0	4.0	4.0	4.0	4.0	4.0
E ≥ 4.9	4.0	4.0	4.0	4.0	4.0	4.0

Table B2-40 Loading Table for PWR Fuel – 1710 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	51< B ≤52	52< B ≤53	53< B ≤54	54< B ≤55	55< B ≤56	56< B ≤57
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-
2.9 ≤ E < 3.1	4.2	4.4	4.5	-	-	-
3.1 ≤ E < 3.3	4.2	4.3	4.4	4.5	4.6	4.7
3.3 ≤ E < 3.5	4.1	4.2	4.3	4.4	4.5	4.6
3.5 ≤ E < 3.7	4.0	4.2	4.3	4.4	4.5	4.6
3.7 ≤ E < 3.9	4.0	4.1	4.2	4.3	4.4	4.5
3.9 ≤ E < 4.1	4.0	4.1	4.2	4.3	4.3	4.4
4.1 ≤ E < 4.3	4.0	4.0	4.1	4.2	4.3	4.4
4.3 ≤ E < 4.5	4.0	4.0	4.1	4.2	4.2	4.3
4.5 ≤ E < 4.7	4.0	4.0	4.0	4.1	4.2	4.3
4.7 ≤ E < 4.9	4.0	4.0	4.0	4.0	4.1	4.2
E ≥ 4.9	4.0	4.0	4.0	4.0	4.1	4.2

Table B2-40 Loading Table for PWR Fuel – 1710 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU		
	57< B ≤58	58< B ≤59	59< B ≤60
1.3 ≤ E < 1.5	-	-	-
1.5 ≤ E < 1.7	-	-	-
1.7 ≤ E < 1.9	-	-	-
1.9 ≤ E < 2.1	-	-	-
2.1 ≤ E < 2.3	-	-	-
2.3 ≤ E < 2.5	-	-	-
2.5 ≤ E < 2.7	-	-	-
2.7 ≤ E < 2.9	-	-	-
2.9 ≤ E < 3.1	-	-	-
3.1 ≤ E < 3.3	4.9	5.0	-
3.3 ≤ E < 3.5	4.8	4.9	5.0
3.5 ≤ E < 3.7	4.7	4.8	5.0
3.7 ≤ E < 3.9	4.6	4.8	4.9
3.9 ≤ E < 4.1	4.5	4.7	4.8
4.1 ≤ E < 4.3	4.5	4.6	4.7
4.3 ≤ E < 4.5	4.4	4.5	4.7
4.5 ≤ E < 4.7	4.4	4.5	4.6
4.7 ≤ E < 4.9	4.3	4.4	4.5
E ≥ 4.9	4.3	4.4	4.5

Table B2-41 Loading Table for PWR Fuel – 788 W/Assembly – CE 16x16 Fuel

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	45< B ≤46	46< B ≤47	47< B ≤48	48< B ≤49	49< B ≤50	50< B ≤51
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	10.2	11.0	11.8	12.7	-	-
2.9 ≤ E < 3.1	9.9	10.7	11.5	12.3	13.3	14.2
3.1 ≤ E < 3.3	9.8	10.5	11.2	12.0	12.9	13.9
3.3 ≤ E < 3.5	9.6	10.2	11.0	11.8	12.6	13.6
3.5 ≤ E < 3.7	9.4	10.0	10.8	11.6	12.4	13.3
3.7 ≤ E < 3.9	9.2	9.8	10.6	11.3	12.0	13.0
3.9 ≤ E < 4.1	9.1	9.7	10.4	11.1	11.9	12.8
4.1 ≤ E < 4.3	9.0	9.5	10.2	11.0	11.7	12.5
4.3 ≤ E < 4.5	8.9	9.4	10.0	10.8	11.5	12.3
4.5 ≤ E < 4.7	8.8	9.3	9.9	10.6	11.4	12.1
4.7 ≤ E < 4.9	8.7	9.2	9.8	10.5	11.2	12.0
E ≥ 4.9	8.6	9.1	9.7	10.3	11.1	11.8

Table B2-41 Loading Table for PWR Fuel – 788 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU					
	51< B ≤52	52< B ≤53	53< B ≤54	54< B ≤55	55< B ≤56	56< B ≤57
1.3 ≤ E < 1.5	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-
2.1 ≤ E < 2.3	-	-	-	-	-	-
2.3 ≤ E < 2.5	-	-	-	-	-	-
2.5 ≤ E < 2.7	-	-	-	-	-	-
2.7 ≤ E < 2.9	-	-	-	-	-	-
2.9 ≤ E < 3.1	15.2	16.3	17.4	-	-	-
3.1 ≤ E < 3.3	14.9	15.9	17.0	18.0	18.7	19.7
3.3 ≤ E < 3.5	14.6	15.6	16.6	17.7	18.2	19.3
3.5 ≤ E < 3.7	14.2	15.2	16.3	17.3	17.9	19.0
3.7 ≤ E < 3.9	13.9	14.9	15.9	17.0	17.5	18.6
3.9 ≤ E < 4.1	13.7	14.6	15.6	16.7	17.2	18.2
4.1 ≤ E < 4.3	13.4	14.3	15.4	16.4	16.9	18.0
4.3 ≤ E < 4.5	13.2	14.1	15.1	16.1	16.7	17.7
4.5 ≤ E < 4.7	13.0	13.9	14.9	15.8	16.4	17.4
4.7 ≤ E < 4.9	12.8	13.7	14.7	15.7	16.1	17.2
E ≥ 4.9	12.7	13.5	14.5	15.4	16.0	17.0

Table B2-41 Loading Table for PWR Fuel – 788 W/Assembly – CE 16x16 Fuel
(Continued)

Initial Assembly Avg. Enrichment wt % ²³⁵ U (E)	Assembly Average Burnup (B) GWd/MTU		
	57< B ≤58	58< B ≤59	59< B ≤60
1.3 ≤ E < 1.5	-	-	-
1.5 ≤ E < 1.7	-	-	-
1.7 ≤ E < 1.9	-	-	-
1.9 ≤ E < 2.1	-	-	-
2.1 ≤ E < 2.3	-	-	-
2.3 ≤ E < 2.5	-	-	-
2.5 ≤ E < 2.7	-	-	-
2.7 ≤ E < 2.9	-	-	-
2.9 ≤ E < 3.1	-	-	-
3.1 ≤ E < 3.3	20.8	21.8	-
3.3 ≤ E < 3.5	20.4	21.4	22.5
3.5 ≤ E < 3.7	20.0	21.1	22.1
3.7 ≤ E < 3.9	19.7	20.7	21.7
3.9 ≤ E < 4.1	19.3	20.3	21.4
4.1 ≤ E < 4.3	19.0	20.0	21.1
4.3 ≤ E < 4.5	18.7	19.7	20.8
4.5 ≤ E < 4.7	18.4	19.5	20.5
4.7 ≤ E < 4.9	18.2	19.2	20.2
E ≥ 4.9	17.9	19.0	20.0

Table B2-42 Low SNF Assembly Average Burnup Enrichment Limits for CE 16x16 Fuel Loaded via the PMTC

Max. Assembly Avg. Burnup (MWd/MTU)	Min. Assembly Avg. Initial Enrichment (wt% ²³⁵ U)	Minimum Cool Time (yrs)
10,000	1.3	4.0
15,000	1.5	4.0
20,000	1.7	4.0
25,000	1.9	4.1

Table B2-43 Loading Table for CE 16x16 Fuel Loaded via the PMTC

Initial Assembly Avg. Enrichment (wt% ²³⁵ U)	Assembly Average Burnup (GWd/MTU)						
	25 < B ≤ 30	30 < B ≤ 35	35 < B ≤ 40	40 < B ≤ 45	45 < B ≤ 50	50 < B ≤ 55	55 < B ≤ 60
	Minimum Cooling Time (years)						
1.3 ≤ E < 1.5	-	-	-	-	-	-	-
1.5 ≤ E < 1.7	-	-	-	-	-	-	-
1.7 ≤ E < 1.9	-	-	-	-	-	-	-
1.9 ≤ E < 2.1	-	-	-	-	-	-	-
2.1 ≤ E < 2.3	4.8	-	-	-	-	-	-
2.3 ≤ E < 2.5	4.7	5.7	-	-	-	-	-
2.5 ≤ E < 2.7	4.7	5.6	6.9	-	-	-	-
2.7 ≤ E < 2.9	4.6	5.5	6.8	8.9	-	-	-
2.9 ≤ E < 3.1	4.6	5.5	6.7	8.8	14.0	-	-
3.1 ≤ E < 3.3	4.5	5.4	6.6	8.6	13.7	19.0	-
3.3 ≤ E < 3.5	4.5	5.3	6.6	8.5	13.4	18.7	23.5
3.5 ≤ E < 3.7	4.5	5.3	6.5	8.3	13.1	18.2	23.1
3.7 ≤ E < 3.9	4.4	5.2	6.4	8.2	12.9	17.9	22.7
3.9 ≤ E < 4.1	4.4	5.2	6.3	8.1	12.6	17.7	22.4
4.1 ≤ E < 4.3	4.4	5.2	6.3	8.0	12.4	17.4	22.1
4.3 ≤ E < 4.5	4.4	5.1	6.2	7.9	12.2	17.1	21.8
4.5 ≤ E < 4.7	4.3	5.1	6.2	7.8	12.0	16.8	21.5
4.7 ≤ E < 4.9	4.3	5.0	6.1	7.8	11.9	16.6	21.3
E ≥ 4.9	4.3	5.0	6.1	7.7	11.8	16.4	21.1

- The minimum cool times for heat loads of 811 W/assy for assembly average burnups less than 45 GWd/MTU and heat loads of 770 W/Assy for burnups greater than 45 GWd/MTU

Enclosure 4

List of Changes

for

MAGNASTOR® FSAR, Amendment 7

(Docket No 72-1031)

NAC International

April 2016

List of Changes for the MAGNASTOR® FSAR, Amendment 7

Note: The List of Effective Pages and the Chapter Table of Contents, List of Figures, and List of Tables have been revised accordingly to reflect the list of changes detailed below.

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- No changes

Chapter 2

- No changes

Chapter 3

- No changes

Chapter 4

- Page 4.10.2-1, modified the third paragraph of Section 4.10.2-2 and deleted the embedded table at the bottom of the page.
- Page 4.10.2-2, modified text throughout the last paragraph of Section 4.10.2.2 and deleted the embedded table at the end of the section. Modified text throughout Section 4.10.2.3, and revised the second sentence in Section 4.10.2.4.
- Page 4.10.2-3, text flow changes.
- Page 4.10.2-6, added new Table 4.10-1, “Durations and Temperatures at the End of the First Vacuum Stage for PMTC Configuration,” and new Table 4.10-2, “Durations and Temperatures at the End of the Second Vacuum Stage for PMTC Configuration” to the end of Section 4.10.2.

Chapter 5

- No changes

Chapter 6

- No changes

Chapter 7

- No changes

Chapter 8

- No changes

Chapter 9

- No changes

Chapter 10

- No changes

Chapter 11

- No changes

Chapter 12

- No changes

Chapter 13

- No changes

Chapter 14

- No changes

Chapter 15

- No changes

Enclosure 5

FSAR Changed Pages

for

MAGNASTOR® FSAR, Amendment 7

(Docket No. 72-1031)

NAC International

April 2016

April 2016

Revision 16A

MAGNASTOR®

(Modular Advanced Generation
Nuclear All-purpose STORage)

FINAL SAFETY ANALYSIS REPORT

NON-PROPRIETARY VERSION

Docket No. 72-1031



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4.10.2 Evaluation of Transfer Operations Using PMTC

Thermal evaluation is performed for the Transfer Cask (PMTC) containing the TSC with PWR fuels for the water, vacuum drying, helium and transfer conditions.

4.10.2.1 Evaluation of the Water Phase

The two-dimensional axisymmetric FLUENT model as described in Section 4.10.1.2 (Model No.2) is used to evaluate the transfer operation when the TSC is filled with water and cooling water running in the annulus between the TSC shell and the inner shell of the PMTC. A steady state analysis is performed using a heat load of 30 kW. The maximum fuel temperature is computed to be 143°F.

4.10.2.2 Evaluation of the Vacuum Drying Phase

A vacuum drying system is used to evacuate and dry the TSC cavity by vaporization and removal of the water vapor and other gases from the cavity through the vent and drain port openings. Thermal analysis for the vacuum drying phase is performed using the three-dimensional ANSYS model as described in Section 4.10.1.5.

Three (3) heat load cases are considered: 20 kW, 25 kW and 30 kW. The initial condition is based on the analysis results for the water phase described in Section 4.10.2.1 (conservative for the 20 kW and 25 kW cases). A bounding boundary condition (TSC shell OD temperature profile) is obtained by a steady state analysis using the two dimensional axisymmetric FLUENT model described in Section 4.10.1.3 (Model No. 3) which corresponds to the heat load of 30 kW.

A transient analysis is performed for 32 hours and 54 hours for the heat load case of 30 kW and 25 kW respectively. A steady state analysis is performed for the 20 kW case. A summary of the maximum temperature for the fuel cladding and the basket is provided in Table 4.10-1. The maximum fuel temperature as a function of time for the vacuum drying for the 30 kW case is shown in Figure 4.10-3.

Note that, after completion of vacuum drying and helium backfill, the shield/seal insert shall be removed in 4 hours for TSC with heat load greater than 20 kW and 7 hours for TSC with heat load less or equal to 20 kW. To determine the system thermal performance during this period, the boundary condition of the three-dimensional ANSYS model is conservatively changed to adiabatic and the transient analysis for the vacuum drying phase is continued for another 4 hours for the 25 kW and 30 kW cases. Similarly, a transient analysis is performed for 7 hours for the 20 kW case after the steady state analysis. Note that these analyses are conservative since the TSC has been backfilled with helium with the required helium mass per Table 3A-1 of LCO

3.1.1, while vacuum condition is considered in the thermal model. The maximum fuel temperature is calculated to be 694°F, 697°F and 650°F for the heat load case of 30 kW, 25 kW and 20 kW, respectively. Since these temperatures are below the maximum fuel temperature of 715°F for the steady state transfer condition (See Section 4.10.2.4), the TSC can be transferred to the concrete cask after the shield/seal insert are removed.

If the dryness verification is not met within the first vacuum drying cycle time limits, for TSC's having a decay heat of > 20 kW, the TSC shall be backfilled with helium to 84 (-0, +10) psig and cooled by R-ACWS for a minimum of 24 hours. Based on the transient analysis presented in Section 4.10.2.3, the maximum fuel cladding temperature will be reduced by 219°F after the 24-hour cooling period. By using the temperature history for the first vacuum drying cycle and the effect of the 24-hour cooling with TSC backfilled with helium (219°F), the time limit for the second (or subsequent) vacuum drying after the cooling period, is determined to be 17 hours and 34 hours for heat load of 30 kW and 25 kW, respectively, as shown in Table 4.10-2.

4.10.2.3 Evaluation of the Helium Backfill Phase (24 Hours Cooling)

As discussed in Section 4.10.2.2, if the dryness verification is not met within the first vacuum drying cycle time limits, for TSC's having a decay heat of > 20 kW, the TSC shall be backfilled with helium to 84 (-0,+10) psig and cooled by R-ACWS for a minimum of 24 hours. This section presents a bounding transient analysis for the 24 hours cooling period using a heat load of 30 kW. The two-dimensional FLUENT model described in Section 4.10.1.4 is used for the analysis. The analysis considers an initial condition with a maximum fuel cladding temperature of 665°F. The maximum fuel temperature history for the 24 hours period is shown in Figure 4.10-4. After 24 hours of cooling, the maximum fuel temperature is 446°F. The result indicates that the maximum fuel cladding temperature is reduced by 219°F for the 24 hours cool-down period for the 30 kW heat load case. Note that the temperature reduction of 219°F is used in Section 4.10.2.2 to determine the maximum fuel temperature at the end of the 24-hour cooling period. It is conservative to use this temperature reduction for heat load case lower than 30 kW since the analysis for 30 kW case corresponds to the smallest temperature reduction for the 24-hour cooling period.

4.10.2.4 Evaluation of Transfer Condition (Moving the TSC into the Concrete Cask)

A steady state analysis is performed for the PMTC containing the loaded TSC for the 30 kW case. The two-dimensional axisymmetric FLUENT model described in Section 4.10.1.1 is used for the analysis. The decay heat is rejected by the air flow in the annulus. The air temperature

at the inlet is considered to be 104°F. There is no time limit for this operation since the maximum fuel temperature for the steady state for this condition is 715°F, which is lower than the allowable temperature of 752°F for fuel cladding.

Figure 4.10-3 Maximum Fuel Temperature vs. Time for Vacuum Drying – 30 kW Case

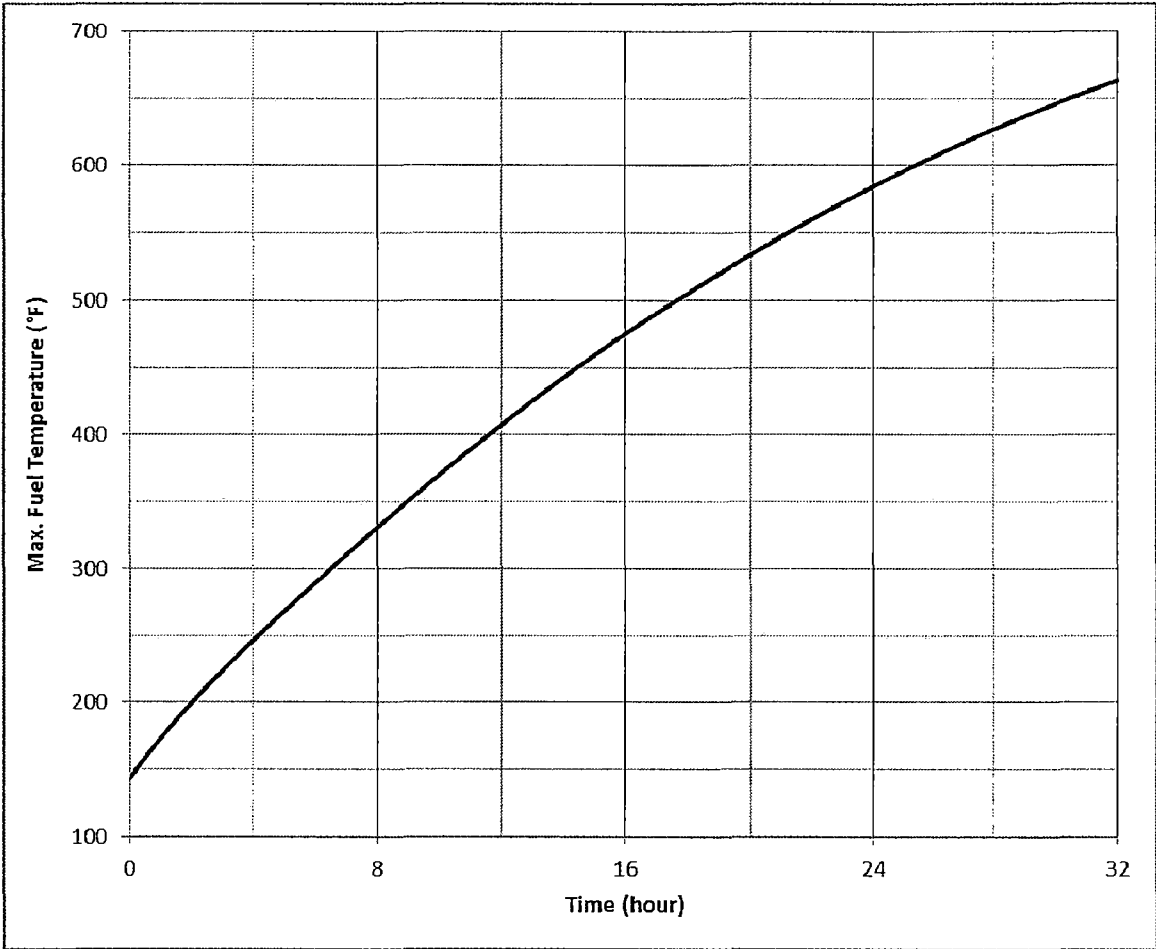


Figure 4.10-4 Maximum Fuel Temperature vs. Time for Cool-down Condition – 30 kW
Case

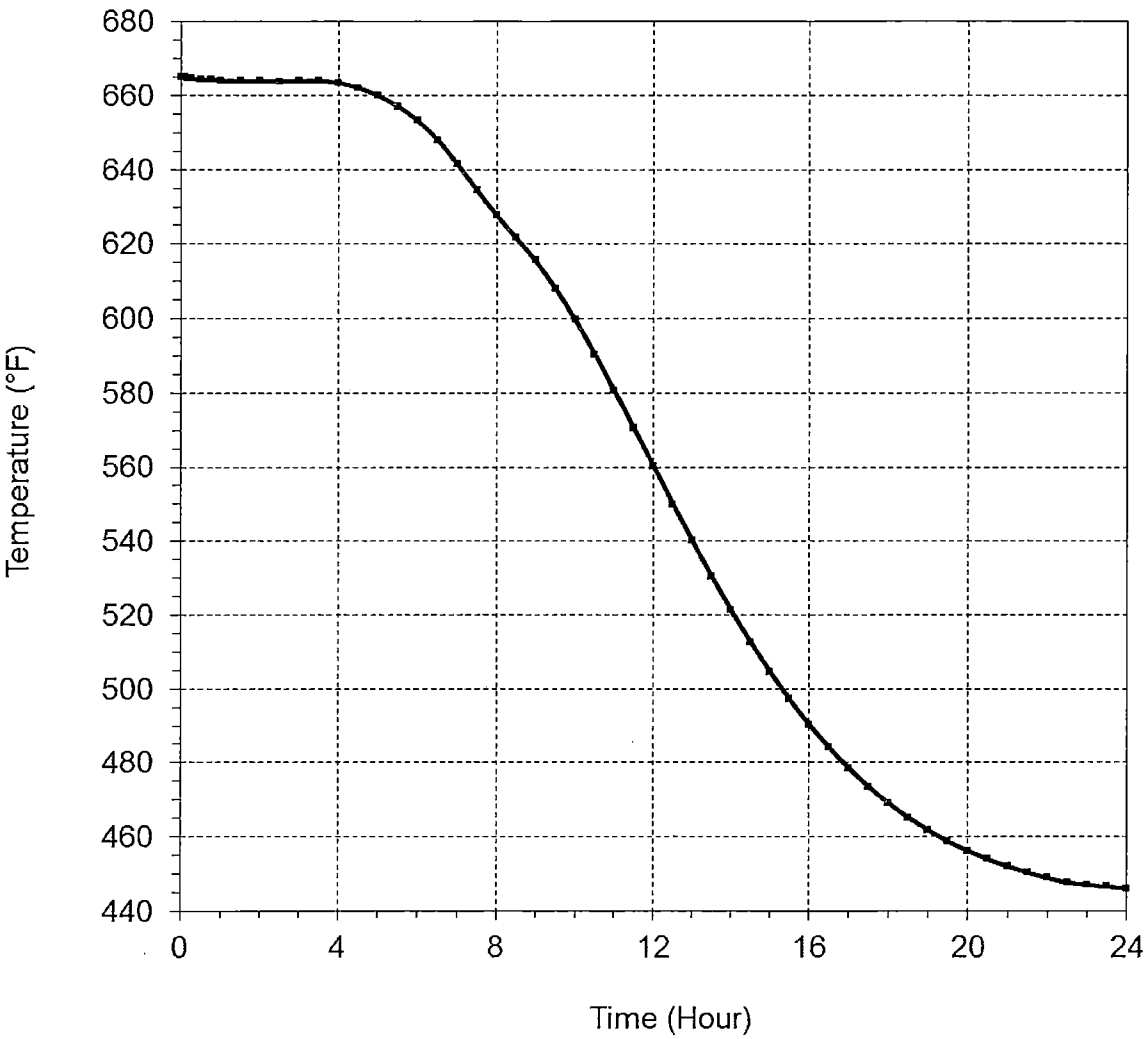


Table 4.10-1 Durations and Temperatures at the End of the First Vacuum Stage for PMTC Configuration

Heat Load (kW)	Vacuum Duration (hours)	T _{max} at the End of the Duration (°F)	
		Fuel	Basket
30	32	663	635
25	54	686	658
20	No Limit	648	621

Table 4.10-2 Durations and Temperatures at the End of the Second Vacuum Stage for PMTC Configuration

Heat Load (kW)	Helium Backfill Duration (hours)	T _{max} of Fuel at the End of the Helium Backfill (°F)	Second Vacuum Duration (hours)	T _{max} of Fuel at the End of the Second Vacuum (°F)
30	24	444	17	663
25	24	467	34	686