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Table 2.1-1 (page 1 of 6)
Fuel Assembly Limits

I. MPC MODEL: MPC-37

A. Allowable Contents

1. Uranium oxide PWR UNDAMAGED FUEL ASSEMBLIES, DAMAGED FUEL ASSEMBLIES, and/or FUEL DEBRIS meeting the criteria in Table 2.1-2, with or without NON-FUEL HARDWARE and meeting the following specifications (Note 1):

a. Cladding Type:	ZR
b. Maximum Initial Enrichment:	5.0 wt. % U-235 with soluble boron credit per LCO 3.3.1 OR burnup credit per Section 2.4
c. Post-irradiation Cooling Time and Average Burnup Per Assembly:	Cooling Time ≥ 1 years and meeting the equation in Section 2.5 Assembly Average Burnup ≤ 68.2 GWD/MTU
d. Decay Heat Per Fuel Storage Location:	As specified in Section 2.3
e. Fuel Assembly Length:	≤ 199.2 inches (nominal design including NON-FUEL HARDWARE and DFC)
f. Fuel Assembly Width:	≤ 8.54 inches (nominal design)
g. Fuel Assembly Weight:	≤ 2050 lbs (including NON-FUEL HARDWARE and DFC)

Table 2.1-1 (page 3 of 6)
Fuel Assembly Limits

II. MPC MODEL: MPC-89

A. Allowable Contents

1. Uranium oxide BWR UNDAMAGED FUEL ASSEMBLIES, DAMAGED FUEL ASSEMBLIES, and/or FUEL DEBRIS meeting the criteria in Table 2.1-3, with or without channels and meeting the following specifications:

- | | |
|--|---|
| a. Cladding Type: | ZR |
| b. Maximum PLANAR-AVERAGE INITIAL ENRICHMENT(Note 1): | As specified in Table 2.1-3 for the applicable fuel assembly array/class. |
| c. Initial Maximum Rod Enrichment | 5.0 wt. % U-235 |
| d. Post-irradiation Cooling Time and Average Burnup Per Assembly | |
| i. Array/Class 8x8F | Cooling time ≥ 10 years and an assembly average burnup ≤ 27.5 GWD/MTU. |
| ii. All Other Array Classes | Cooling Time ≥ 1.2 years and meeting the equation in Section 2.5

and an assembly average burnup ≤ 65 GWD/MTU |
| e. Decay Heat Per Assembly | |
| i. Array/Class 8x8F | ≤ 183.5 Watts |
| ii. All Other Array Classes | As specified in Section 2.3 |
| f. Fuel Assembly Length | ≤ 176.5 inches (nominal design) |
| g. Fuel Assembly Width | ≤ 5.95 inches (nominal design) |
| h. Fuel Assembly Weight | ≤ 850 lbs, including a DFC as well as a channel |

Table 2.1-1 (page 5 of 6)
Fuel Assembly Limits

III. MPC MODEL: MPC-32ML

A. Allowable Contents

1. Uranium oxide PWR UNDAMAGED FUEL ASSEMBLIES, DAMAGED FUEL ASSEMBLIES, and/or FUEL DEBRIS meeting the criteria for array/class 16x16D in Table 2.1-2, with or without NON-FUEL HARDWARE and meeting the following specifications (Note 1):

- | | |
|---|--|
| a. Cladding Type: | ZR |
| b. Maximum Initial Enrichment: | 5.0 wt. % U-235 with soluble boron credit per LCO 3.3.1 |
| c. Post-irradiation Cooling Time and Average Burnup Per Assembly: | Cooling Time \geq 3 years and meeting the equation in Section 2.5 |
| | Assembly Average Burnup \leq 68.2 GWD/MTU |
| d. Decay Heat Per Fuel Storage Location: | As specified in Section 2.3 |
| e. Fuel Assembly Length: | \leq 196.122 inches (nominal design including NON-FUEL HARDWARE and DFC) |
| f. Fuel Assembly Width: | \leq 9.04 inches (nominal design) |
| g. Fuel Assembly Weight: | \leq 2200 lbs (including NON-FUEL HARDWARE and DFC). Average fuel weight not to exceed 2140 lbs. |

2.5 Burnup and Cooling Time Fuel Qualification Requirements

Burnup and cooling time limits for fuel assemblies authorized for loading into MPC-32ML are provided in Table 2.5-1. Burnup and cooling time limits for fuel assemblies authorized for loading according to the alternative loading patterns shown in Figures 2.3-1 through 2.3-9 (MPC-37) and Figures 2.3-10 through 2.3-13 (MPC-89) are provided in Table 2.5-2.

The burnup and cooling time for every fuel loaded into the MPC-32ML, MPC-37 and MPC-89 must satisfy the following equation:

$$Ct = A \cdot Bu^3 + B \cdot Bu^2 + C \cdot Bu + D$$

where,

Ct = Minimum cooling time (years)
 Bu = Assembly-average burnup (MWd/mtU)
 A, B, C, D = Polynomial coefficients listed in the Tables 2.5-1 and 2.5-2

Minimum cooling time must also meet limits specified in Table 2.1-1. If the calculated Ct is less than the cooling time limit in Table 2.1-1, the minimum cooling time in Table 2.1-1 is used.

TABLE 2.5-1
BURNUP AND COOLING TIME FUEL QUALIFICATION REQUIREMENTS
FOR MPC-32ML

A	B	C	D
6.7667E-14	-3.6726E-09	8.1319E-05	2.7951E+00

TABLE 2.5-2
BURNUP AND COOLING TIME FUEL QUALIFICATION REQUIREMENTS
FOR MPC-37 AND MPC-89

Cell Decay Heat Load Limit (kW)	Polynomial Coefficients			
	A	B	C	D (Note 1)
MPC-37				
≤ 0.85	1.68353E-13	-9.65193E-09	2.69692E-04	2.95915E-01
$0.85 < \text{decay heat} \leq 3.5$	1.19409E-14	-1.53990E-09	9.56825E-05	-3.98326E-01
MPC-89				
≤ 0.32	1.65723E-13	-9.28339E-09	2.57533E-04	3.25897E-01
$0.32 < \text{decay heat} \leq 0.5$	3.97779E-14	-2.80193E-09	1.36784E-04	3.04895E-01
$0.5 < \text{decay heat} \leq 0.75$	1.44353E-14	-1.21525E-09	8.14851E-05	3.31914E-01
$0.75 < \text{decay heat} \leq 1.1$	-7.45921E-15	1.09091E-09	-1.14219E-05	9.76224E-01
$1.1 < \text{decay heat} \leq 1.45$	3.10800E-15	-7.92541E-11	1.56566E-05	6.47040E-01
$1.45 < \text{decay heat} \leq 1.6$	-8.08081E-15	1.23810E-09	-3.48196E-05	1.11818E+00

NOTES:

1. For BLEU fuel, coefficient D is increased by 1.