

### 3.7 PLANT SYSTEMS

#### 3.7.17 Spent Fuel Assembly Storage

LCO 3.7.17      The combination of initial enrichment, burnup and decay time of each spent fuel assembly stored in Region II racks shall be within either (1) the "acceptable" domain of Figure 3.7.17-1 in a 4 out of 4 configuration, (2) the "acceptable" domain of Figure 3.7.17-2 in a 3 out of 4 configuration, (3) the "acceptable" domain of Figure 3.7.17-3 in a 2 out of 4 configuration, or (4) shall be stored in a 1 out of 4 configuration. The acceptable storage configurations are shown in Figure 3.7.17-4.

APPLICABILITY:      Whenever any fuel assembly is stored in Region II racks of the spent fuel storage pool.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	<p>A.1      -----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>Initiate action to move the noncomplying fuel assembly to an acceptable storage location.</p>	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.17.1      Verify by administrative means the initial enrichment, burnup and decay time of the fuel assembly is in accordance with either (1) the "acceptable" domain of Figure 3.7.17-1 in a 4 out of 4 configuration, (2) the "acceptable" domain of Figure 3.7.17-2 in a 3 out of 4 configuration, (3) the "acceptable" domain of Figure 3.7.17-3 in a 2 out of 4 configuration, or (4) a 1 out of 4 configuration. The acceptable storage configurations are shown in Figure 3.7.17-4.</p>	<p>Prior to storing the fuel assembly in Region II racks</p>

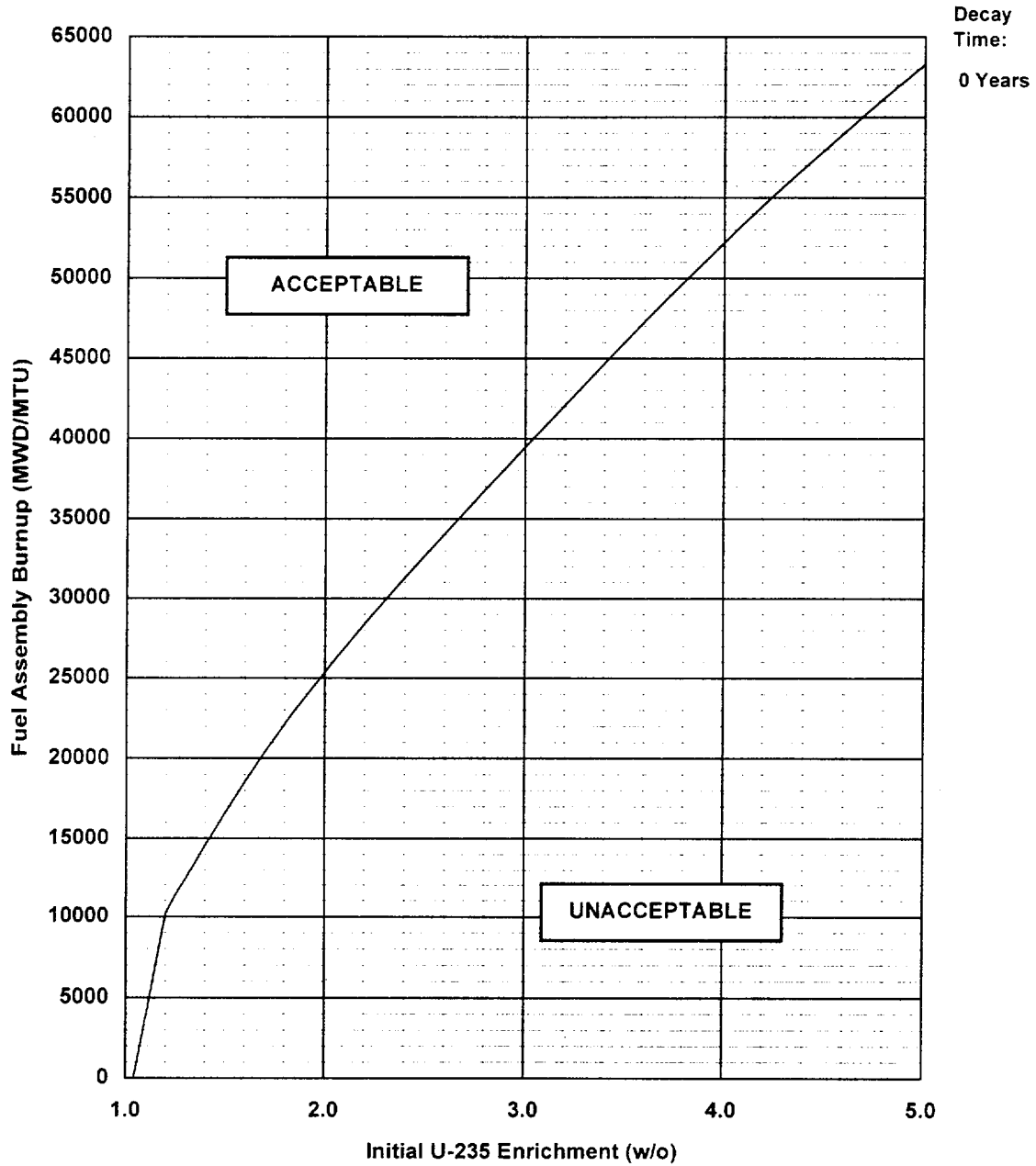


FIGURE 3.7.17-1  
Fuel Assembly Burnup vs. U-235 Enrichments vs. Decay Time Limits  
For a 4 out of 4 Storage Configuration in Region II Racks

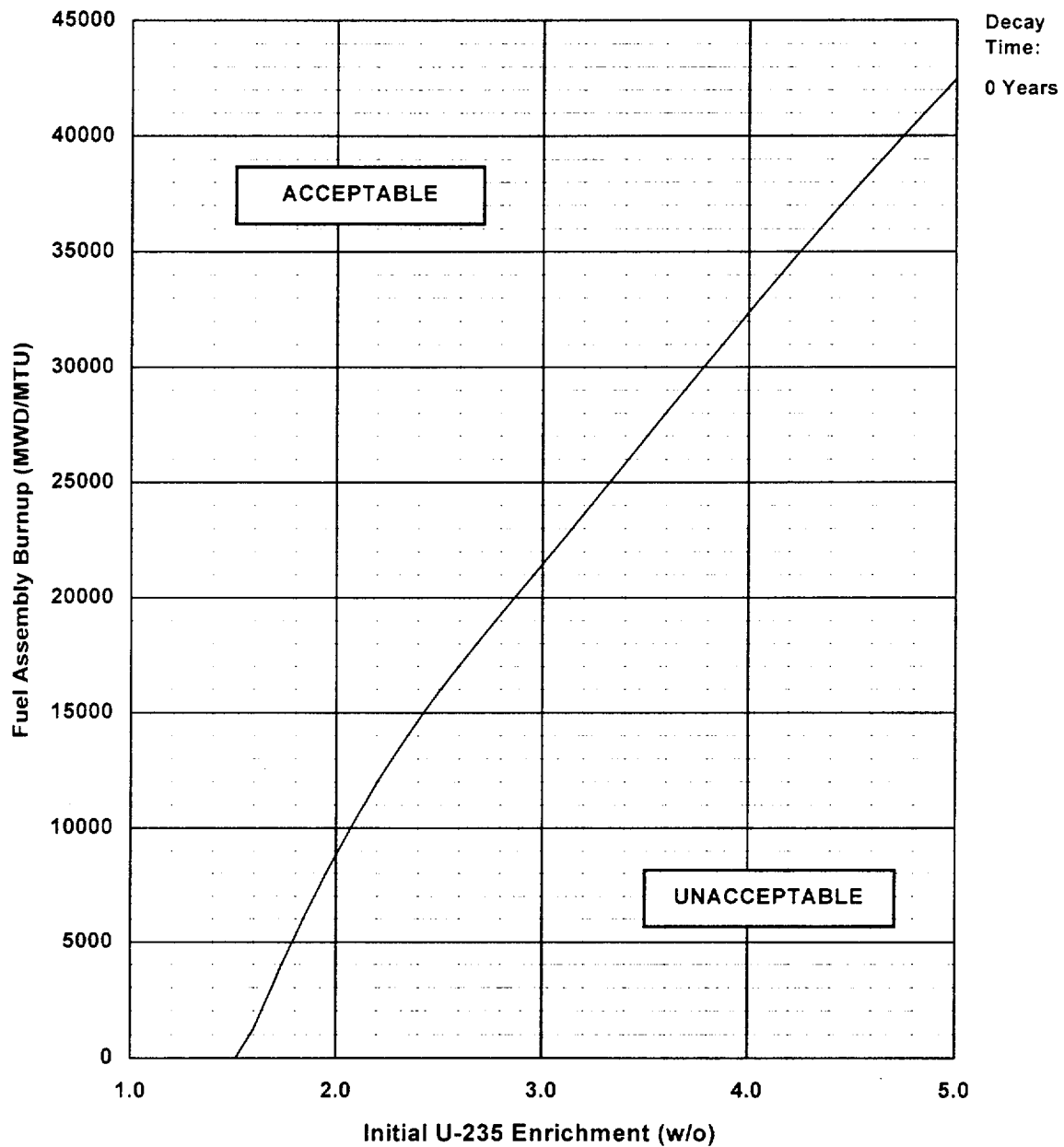


Figure 3.7.17-2  
Minimum Burnup vs. Initial U-235 Enrichment vs. Decay Time  
For a 3 out of 4 Storage Configuration in Region II Racks

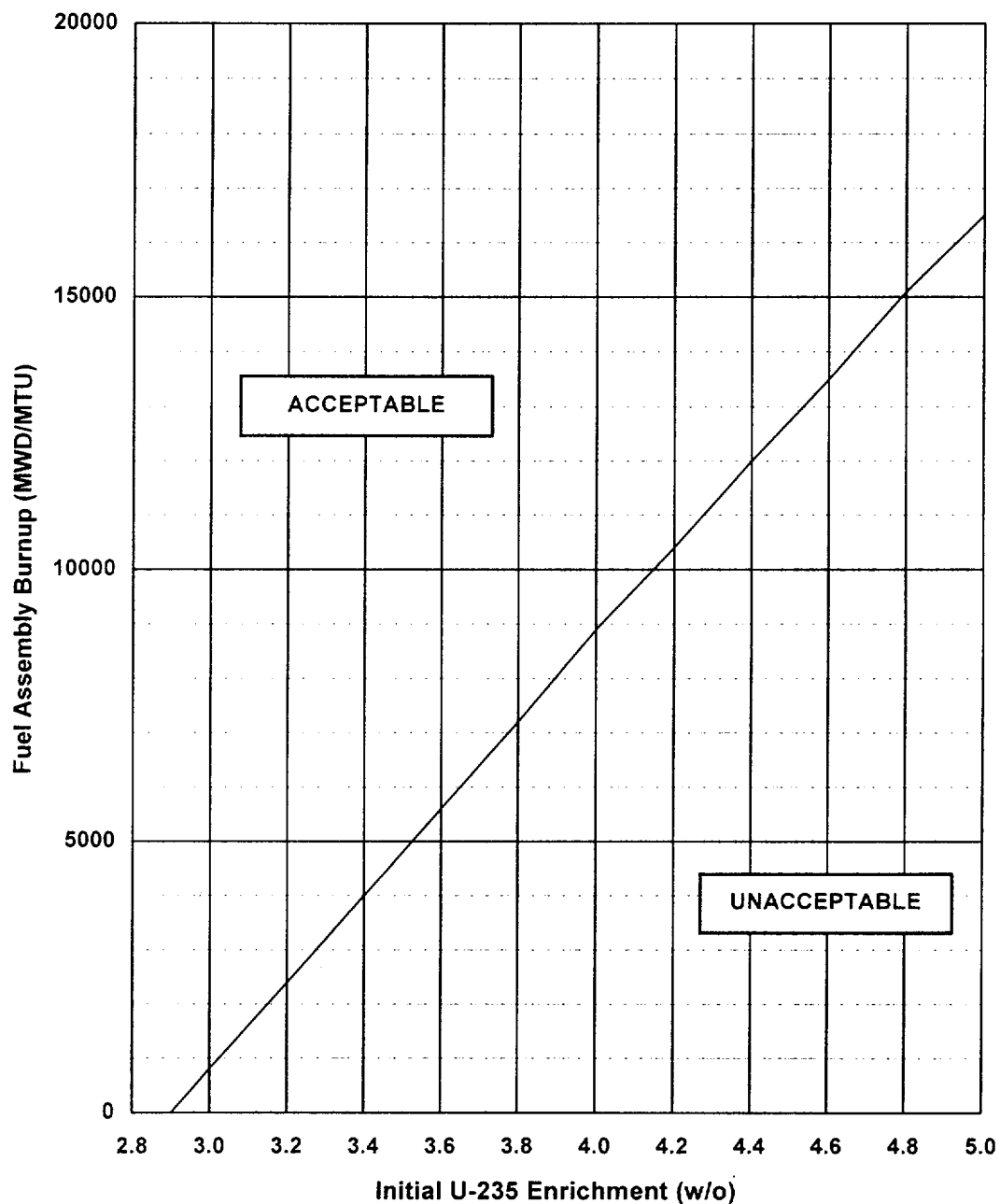


Figure 3.7.17-3  
Minimum Burnup vs. Initial U-235 Enrichment  
For a 2 out of 4 Storage Configuration in Region II Racks

A	A	A	A	A	A
A	A	A	A	A	A
A	A	A	A	A	A
A	A	A	A	A	A
A	A	A	A	A	A
A	A	A	A	A	A

	B		B		B
B	B	B	B	B	B
	B		B		B
B	B	B	B	B	B
	B		B		B
B	B	B	B	B	B

C		C		C	
	C		C		C
C		C		C	
	C		C		C
C		C		C	
	C		C		C

	D		D		D
	D		D		D
	D		D		D

- A Region II (4/4), new or partially spent fuel assemblies in the “acceptable” domain of Figure 3.7.17-1.
- B Region II (3/4), new or partially spent fuel assemblies in the “acceptable” domain of Figure 3.7.17-2.
- C Region II (2/4), new or partially spent fuel assemblies in the “acceptable” domain of Figure 3.7.17-3.
- D Region II (1/4), new or partially spent fuel assemblies which are stored in an expanded checkerboard (1 out of 4).

□ - empty

Note: All possible 2 by 2 matrices containing Region II rack cells shall comply with at least one of the following: (1) within the “acceptable” domain of Figure 3.7.17-1 in a 4 out of 4 configuration, (2) within the “acceptable” domain of Figure 3.7.17-2 in a 3 out of 4 configuration, (3) within the “acceptable” domain of Figure 3.7.17-3 in a 2 out of 4 configuration, or (4) a 1 out of 4 configuration.

Region I and Region II interface restrictions: The Region II 1 out of 4 configuration shall be oriented such that the single fuel assembly resides in the internal row with the empty cells facing Region I. There are no interface restrictions between the Region II (2/4, 3/4, 4/4) and Region I configurations.

Figure 3.7.17-4  
Storage Configurations (4/4, 3/4, 2/4, 1/4) in Region II Racks

## 4.0 DESIGN FEATURES (continued)

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### 4.3 Fuel Storage

#### 4.3.1 Criticality

##### 4.3.1.1

The spent fuel storage racks are designed and shall be maintained with:

- a. Fuel assemblies having a maximum U-235 enrichment of 5.0 weight percent;
- b.  $k_{\text{eff}} < 1.0$  when fully flooded with unborated water which includes an allowance for uncertainties as described in Section 4.3 of the FSAR;
- c.  $k_{\text{eff}} \leq 0.95$  if fully flooded with water borated to 800 ppm, which includes an allowance for uncertainties as described in Section 4.3 of the FSAR;
- d. A nominal 9 inch center to center distance between fuel storage locations in Region II fuel storage racks;
- e. A nominal 10.6 inch by nominal 11 inch center to center distance between fuel assemblies placed in Region I fuel storage racks;
- f. New or partially spent fuel assemblies may be allowed restricted storage in a 1 out of 4 configuration in Region II fuel storage racks (as shown in Figure 3.7.17-4) or unrestricted storage in Region I fuel storage racks;
- g. New or partially spent fuel assemblies with a discharge burnup in the "acceptable" domain of Figure 3.7.17-1 may be allowed unrestricted storage in a 4 out of 4 configuration in Region II fuel storage racks as shown in Figure 3.7.17-4;
- h. New or partially spent fuel assemblies with a discharge burnup in the "acceptable" domain of Figure 3.7.17-2 may be allowed restricted storage in a 3 out of 4 configuration in Region II fuel storage racks as shown in Figure 3.7.17-4; and

(continued)

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## 4.0 DESIGN FEATURES

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### 4.3.1.1 (continued)

- i. New or partially spent fuel assemblies with a discharge burnup in the "acceptable" domain of Figure 3.7.17-3 may be allowed restricted storage in a 2 out of 4 configuration in Region II fuel storage racks as shown in Figure 3.7.17-4.

### 4.3.1.2 The new fuel storage racks are designed and shall be maintained with:

- a. Fuel assemblies having a maximum U-235 enrichment of 5.0 weight percent;
- b.  $k_{eff} \leq 0.95$  if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 4.3 of the FSAR;
- c.  $k_{eff} \leq 0.98$  if moderated by aqueous foam, which includes an allowance for uncertainties as described in Section 4.3 of the FSAR; and
- d. A nominal 21 inch center to center distance between fuel assemblies placed in the storage racks.

### 4.3.2 Drainage

The spent fuel storage pools are designed and shall be maintained to prevent inadvertent draining of the pool below elevation 854 ft.

### 4.3.3 Capacity

The spent fuel storage pools are designed and shall be maintained with a storage capacity limited to no more than 3373 fuel assemblies.

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