St. Lucie Unit 2
Docket No. 50-389
Proposed License Amendment
SFP Storage Capacity; Soluble Boron Credit

ATTACHMENT 3 TO L-97-325

ST. LUCIE UNIT 2 MARKED-UP TECHNICAL SPECIFICATION PAGES

Page XXII (INDEX - LIST OF FIGURES)

Page 5-4

INSERT - A

Page 5-4A

Proposed Figure 5.6-1a

Proposed Figure 5.6-1b

Proposed Figure 5.6-1c

Proposed Figure 5.6-1d

Proposed Figure 5.6-1e

LIST OF FIGURES (Continued)

REPLACE

Add Page Nos.

Act Page Nos.

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is 10,931 ± 275 cubic feet at a nominal T_{avg} of 572°F.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

CRITICALITY

5.6.1

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

1. A k_{eff} equivalent to less than or equal to 0.95 when flooded with unborated water, which includes a conservative allowance of 0.024 Δk_{eff} for Total Uncertainty.

2. A nominal 8.96 inch center-to-center distance between fuel assemblies placed in the storage racks.

3. A boron concentration greater than or equal to 1720 ppm.

Region I can be used to store fuel which has a U-235 enrichment less than or equal to 4.5 weight percent. Region II can be used to store fuel which has achieved sufficient burnup such that storage in Region I is not required. The initial enrichment vs. burnup requirements of Figure 5.6-1 shall be met prior to storage of fuel assemblies in Region II.

b. The new fuel storage racks are designed for dry storage of unirradiated fuel assemblies having a U-235 enrichment less than or equal to 4.5 weight percent, while maintaining a k_{eff} of less than or equal to 0.98 under the most reactive condition.

REPLACE with INSERT-A shown on next page

DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 56 feet.

CAPACITY

5.6.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than ~~1070~~ 1360 fuel assemblies.

REPLACE

5.7 COMPONENT CYCLIC OR TRANSIENT LIMITS

5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.

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INSERT - A to L-97-325, Attachment 3

5.6.1 a. The spent fuel pool and spent fuel storage racks shall be maintained with:

1. A k_{eff} equivalent to less than 1.0 when flooded with unborated water, including a conservative allowance for biases and uncertainties.

2. A k_{eff} equivalent to less than or equal to 0.95 when flooded with water containing 520 ppm boron, including a conservative allowance for biases and uncertainties.

3. A boron concentration greater than or equal to 1720 ppm.

4. A nominal 8.96 inch center-to-center distance between fuel assemblies placed in the storage racks.

5.6.1 b. Fuel placed in Region I of the spent fuel storage racks shall be stored in a configuration that will assure compliance with 5.6.1 a.1 and 5.6.1 a.2, above, with the following considerations:

1. Fresh fuel shall have a nominal average U-235 enrichment of less than or equal to 4.5 weight percent.

2. The reactivity effect of CEAs placed in fuel assemblies may be considered.

3. The reactivity equivalencing effects of burnable absorbers may be considered.

4. The reactivity effects of fuel assembly burnup and decay time may be considered as specified in Figures 5.6-1c through 5.6-1e.

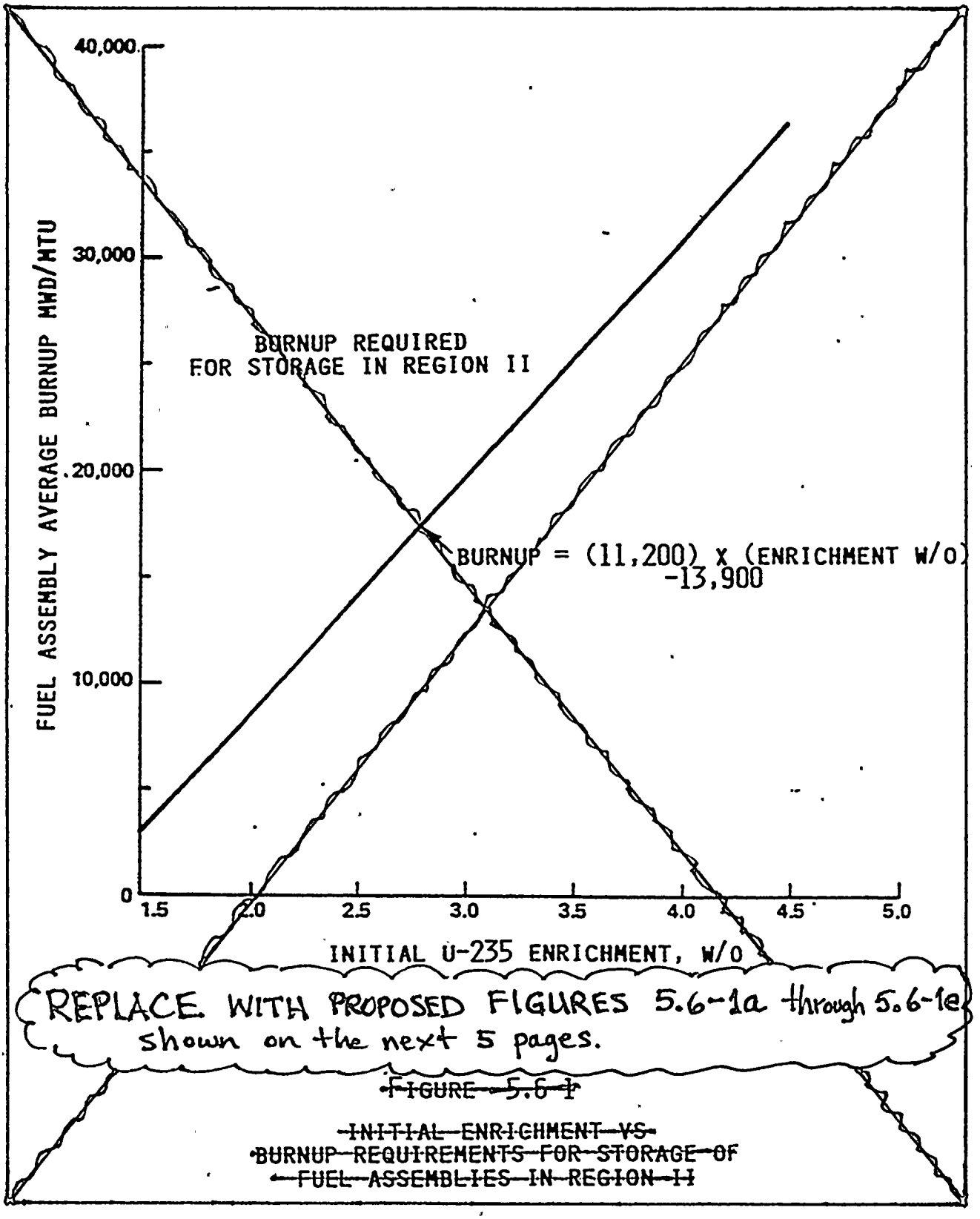
5.6.1 c. Fuel placed in Region II of the spent fuel storage racks shall be placed in a configuration that will assure compliance with 5.6.1 a.1 and 5.6.1 a.2, above, with the following considerations:

1. Fuel placed in Region II shall meet the burnup and decay time requirements specified in Figure 5.6-1a or 5.6-1b.

2. The reactivity effect of CEAs placed in fuel assemblies may be considered.

3. The reactivity equivalencing effects of burnable absorbers may be considered.

5.6.1 d. The new fuel storage racks are designed for dry storage of unirradiated fuel assemblies having a U-235 enrichment less than or equal to 4.5 weight percent, while maintaining a k_{eff} of less than or equal to 0.98 under the most restrictive condition.



REPLACE WITH PROPOSED FIGURES 5.6-1a through 5.6-1e shown on the next 5 pages.

~~FIGURE 5.6-1~~

~~INITIAL ENRICHMENT VS.~~
~~BURNUP REQUIREMENTS FOR STORAGE OF~~
~~FUEL ASSEMBLIES IN REGION II~~

RE-LABEL, AS REQUIRED

REPLACE WITH PROPOSED FIGURES 5.0-1a through 5.0-1e, shown on the next 5 pages.

Figure 5.6-1a

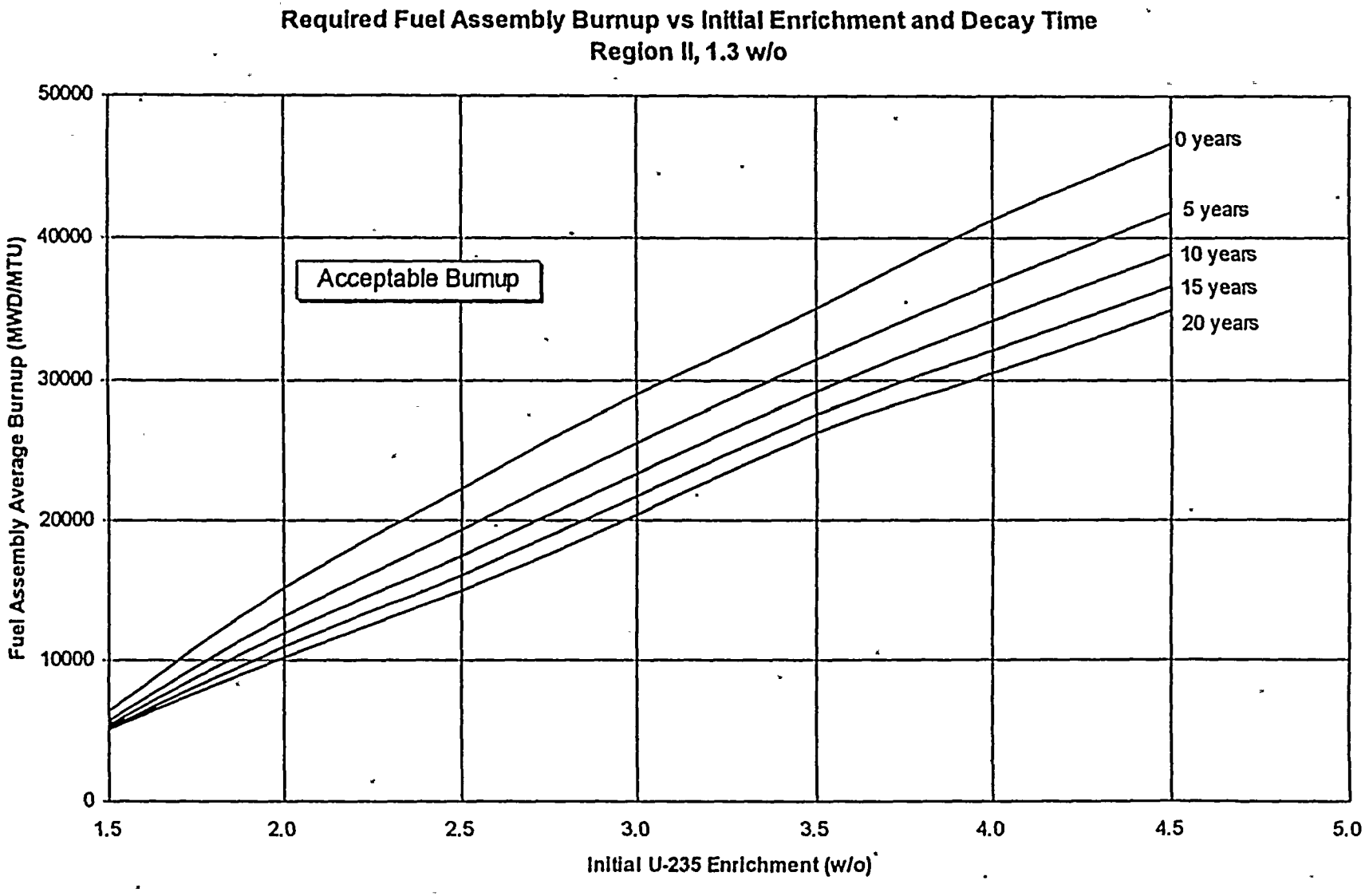

Required Fuel Assembly Burnup vs Initial Enrichment and Decay Time
Region II, 1.3 w/o
Fuel Assembly Average Burnup (MWD/MTU)
50000
40000
30000
20000
10000
0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Initial U-235 Enrichment (w/o)
Acceptable Burnup
0 years
5 years
10 years
15 years
20 years

Figure 5.6-1b

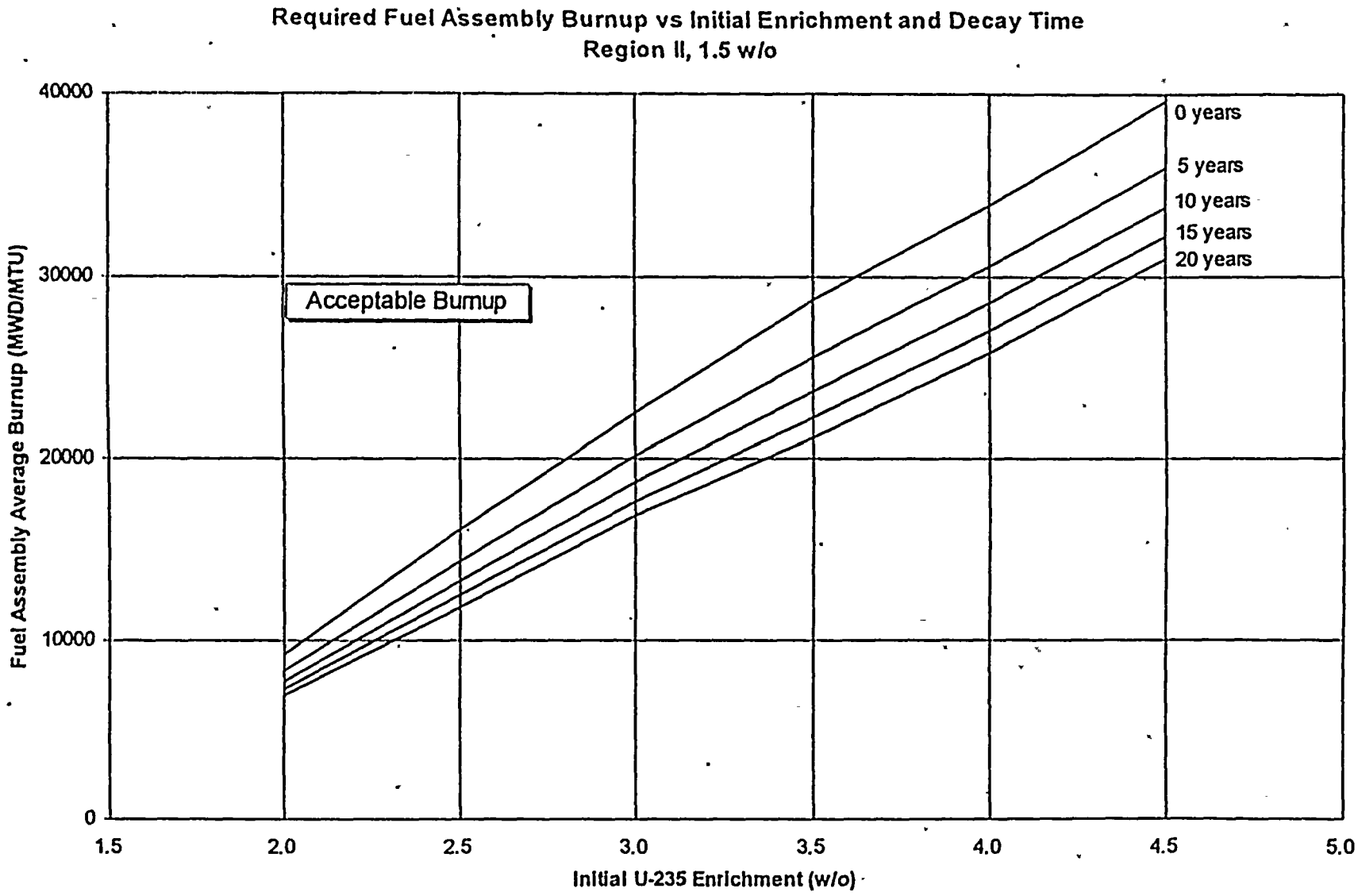

Required Fuel Assembly Burnup vs Initial Enrichment and Decay Time
Region II, 1.5 w/o
Fuel Assembly Average Burnup (MWD/MTU)
40000
30000
20000
10000
0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Initial U-235 Enrichment (w/o)
Acceptable Burnup
0 years
5 years
10 years
15 years
20 years

Figure 5.6-1c

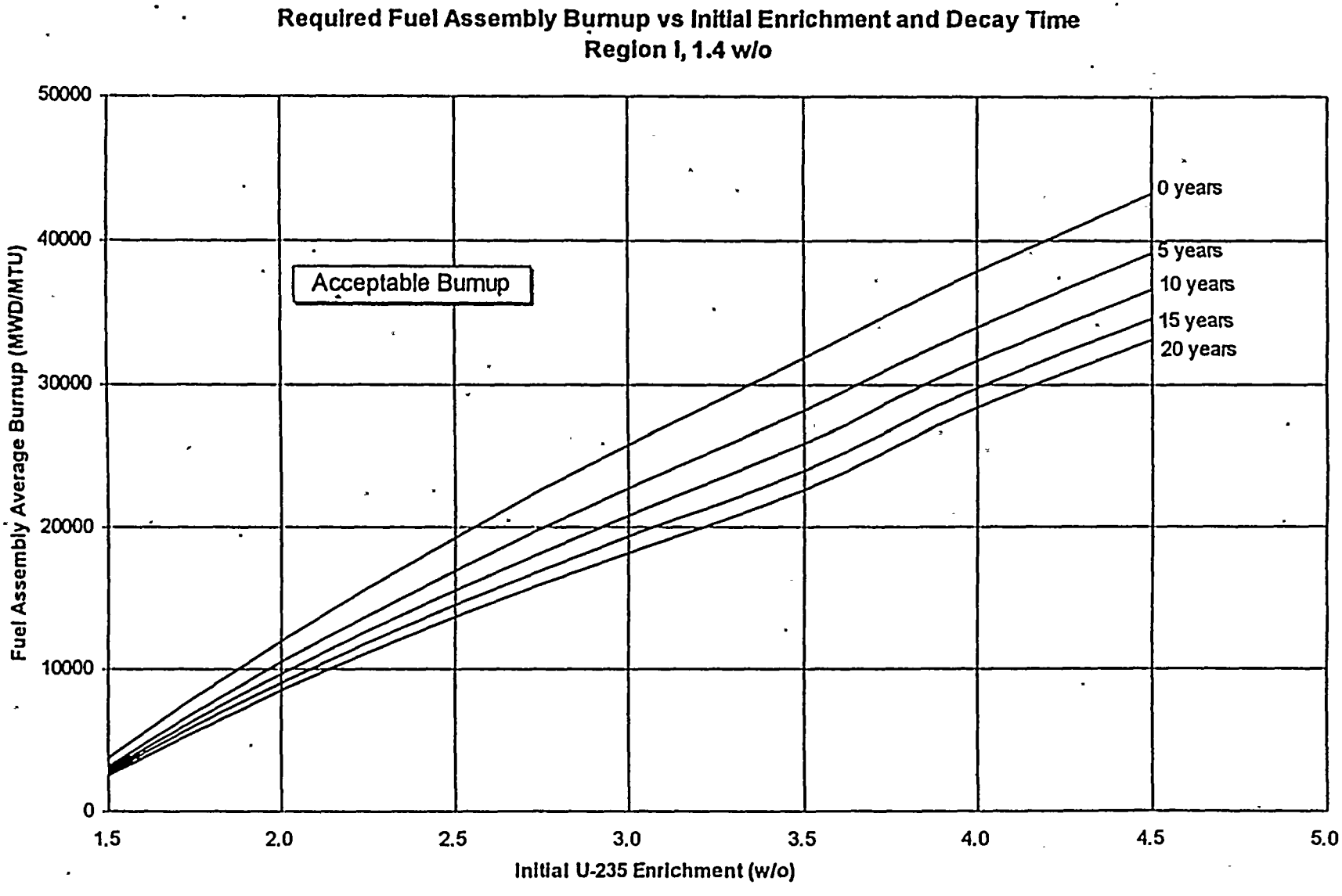

Required Fuel Assembly Burnup vs Initial Enrichment and Decay Time
Region I, 1.4 w/o
Fuel Assembly Average Burnup (MWD/MTU)
50000
40000
30000
20000
10000
0
Acceptable Burnup
0 years
5 years
10 years
15 years
20 years
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Initial U-235 Enrichment (w/o)

Figure 5.6-1d

Required Fuel Assembly Burnup vs Initial Enrichment and Decay Time
Region I, 1.82 w/o

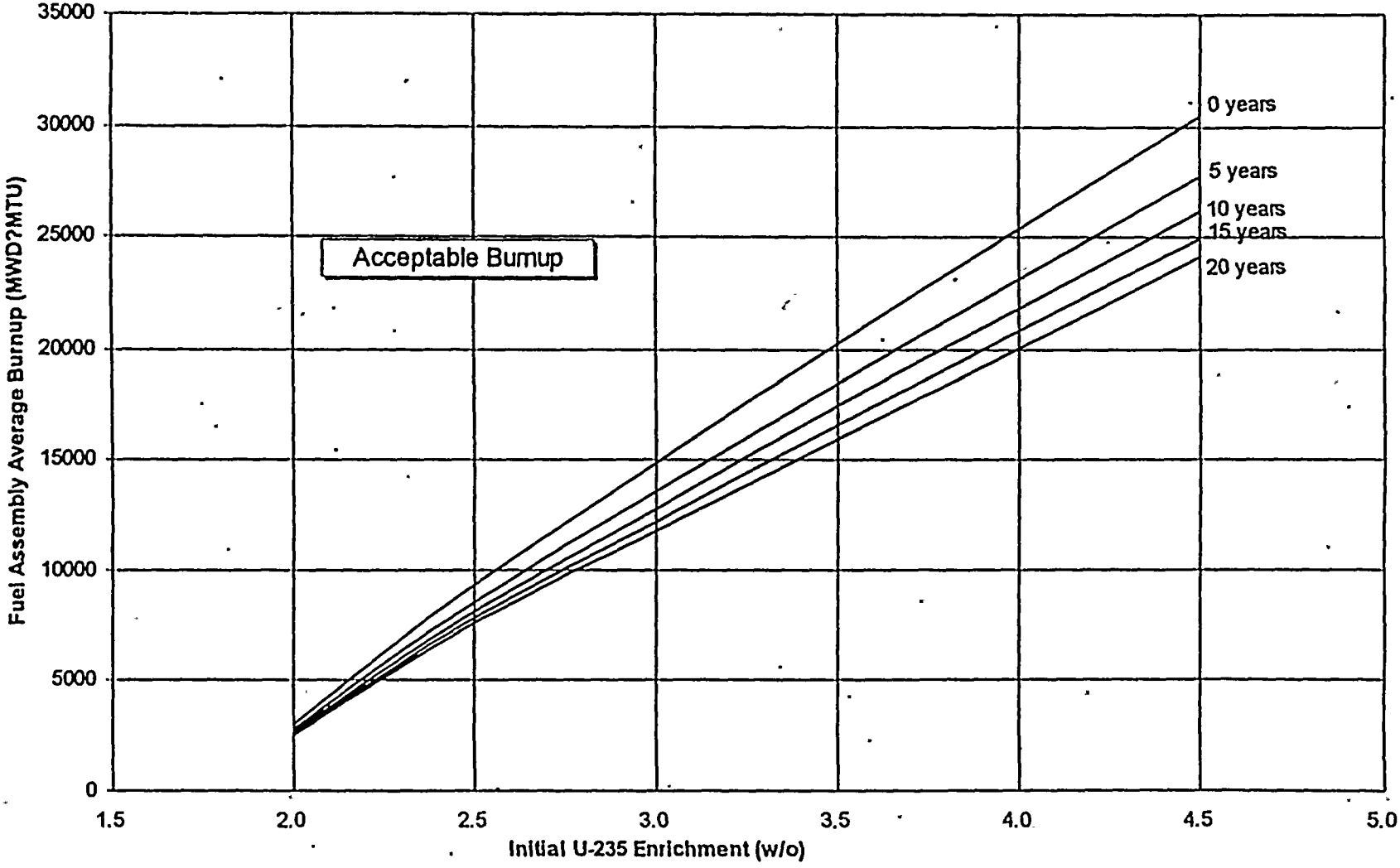
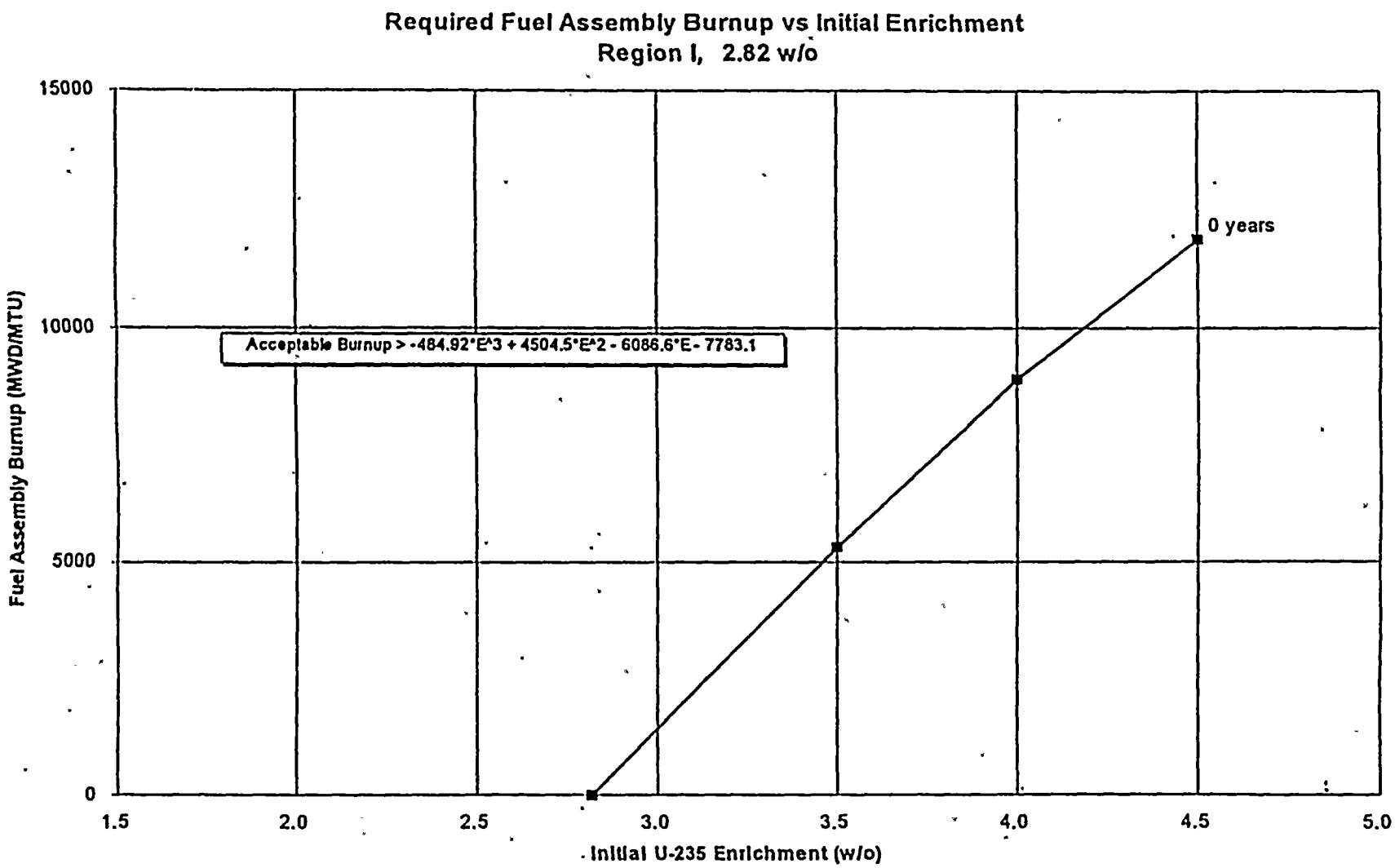


Figure 5.6-1e


Required Fuel Assembly Burnup vs Initial Enrichment
Region I, 2.82 w/o
Fuel Assembly Burnup (MWD/MTU)
15000
10000
5000
0
Acceptable Burnup > -484.92*E^3 + 4504.5*E^2 - 6086.6*E - 7783.1
0 years
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Initial U-235 Enrichment (w/o)

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ENCLOSURE 1 to L-97-325

St. Lucie Unit 2 Criticality Safety Analysis for the Spent Fuel Storage Rack Using Soluble Boron Credit, CENPD-387: Combustion Engineering, Inc., October 1997.