LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

SECTION PAGE

SPENT FUEL STORAGE POOL

LIMITING CONDITION FOR OPERATION

3.9.11 The Spent Fuel Pool shall be maintained with:

a. The fuel storage pool water level greater than or equal to 23 ft over the top of irradiated fuel assemblies seated in the storage racks, and

b. The fuel storage pool boron concentration greater than or equal to 1720 ppm.

APPLICABILITY: Whenever irradiated fuel assemblies are in the spent fuel storage pool.

ACTION:

a. With the water level requirement not satisfied, immediately suspend all movement of fuel assemblies and crane operations with loads in the fuel storage areas and restore the water level to within its limit within 4 hours.

b. With the boron concentration requirement not satisfied, immediately suspend all movement of fuel assemblies in the fuel storage pool and initiate action to restore the fuel storage pool boron concentration to within the required limit.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.11 The water level in the spent fuel storage pool shall be determined to be at least its minimum required depth at least once per 7 days when irradiated fuel assemblies are in the fuel storage pool.

4.9.11.1 Verify the fuel storage pool boron concentration is within limit at least once per 7 days.

CONTROL ELEMENT ASSEMBLIES

5.3.2 The reactor core shall contain 73 full length and no part length control element assemblies. The control element assemblies shall be designed and maintained in accordance with the original design provisions contained in Section 4.2.3.2 of the FSAR with allowance for normal degradation pursuant to the applicable Surveillance Requirements.

5.4 REACTOR COOLANT SYSTEM

DESIGN PRESSURE AND TEMPERATURE

5.4.1 The reactor coolant system is designed and shall be maintained:

a. In accordance with the code requirements specified in Section 5.2 of the FSAR with allowance for normal degradation pursuant to the applicable Surveillance Requirements,

b. For a pressure of 2485 psig, and

c. For a temperature of 650°F, except for the pressurizer which is 700°F.

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is 11,100 ± 180 cubic feet at a nominal T_{avg} of 567°F, when not accounting for steam generator tube plugging.

5.5 EMERGENCY CORE COOLING SYSTEMS

5.5.1 The emergency core cooling systems are designed and shall be maintained in accordance with the original design provisions contained in Section 6.3 of the FSAR with allowance for normal degradation pursuant to the applicable Surveillance Requirements.

5.6 FUEL STORAGE

CRITICALITY

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

1. k_{eff} less than 1.0 when fully flooded with unborated water, which includes an allowance for biases and uncertainties as described in Section 9.1 of the Updated Final Safety Analysis Report.

2. A nominal 10.12 inches center to center distance between fuel assemblies in Region 1 of the spent fuel pool storage racks, a nominal 10.30 inches center to center distance between fuel assemblies in the Region 1 cask pit storage rack, and a nominal 8.86 inches center to center distance between fuel assemblies in Region 2 of the spent fuel pool storage racks.

CRITICALITY (Continued)

3. A k_{eff} less than or equal to 0.95 when flooded with water containing 500 ppm boron, including an allowance for biases and uncertainties as described in Section 9.1 of the Updated Final Safety Analysis Report.

4. For storage of enriched fuel assemblies, requirements of Criteria 1 and 3 shall be met by positioning fuel in the spent fuel storage racks consistent with the requirements of Specification 5.6.1.c.

5. Vessel Flux Reduction Assemblies (VFRAs), as defined in Section 9.1 of the Updated Final Safety Analysis Report, may be placed in any allowable fuel storage location.

6. Fissile material, not contained in a fuel assembly lattice, shall be stored in accordance with the requirements of Criteria 1 and 3.

b. The Region 1 cask pit storage rack shall contain neutron absorbing material (Boral) between stored fuel assemblies when installed in the spent fuel pool.

c. Loading of spent fuel storage racks shall be controlled as described below. Criteria 2 and 3 do not apply to the Region 1 cask pit storage rack.

1. The maximum initial planar average U-235 enrichment of any fuel assembly inserted in a spent fuel storage rack shall be less than or equal to 4.5 weight percent.

2. Fuel placed in Region 1 of the spent fuel pool storage racks shall comply with the storage patterns and alignment restrictions of Figure 5.6-1 and the minimum burnup requirements of Table 5.6-1 and Table 5.6-2.

3. Fuel placed in Region 2 of the spent fuel pool storage racks shall comply with the storage patterns or allowed special arrangements of Figure 5.6-2 and the minimum burnup requirements of Table 5.6-1 and Table 5.6-2. The allowed special arrangement for fresh fuel may be repeated, provided the applicable interface requirements specified by the safety analysis are met.

4. Any fuel satisfying criteria 5.6.1.c.1, including fresh fuel, may be placed in the Region 1 cask pit storage rack.

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 reactive condition.

DRAINAGE

5.6.2 The fuel 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 pool storage racks are designed and shall be maintained with a storage capacity limited to no more than 1706 fuel assemblies, and the cask pit storage rack is designed and shall be maintained with a storage capacity limited to no more than 143 fuel assemblies. The total Unit 1 spent fuel pool and cask pit storage capacity is limited to no more than 1849 fuel assemblies.

5.7 SEISMIC CLASSIFICATION

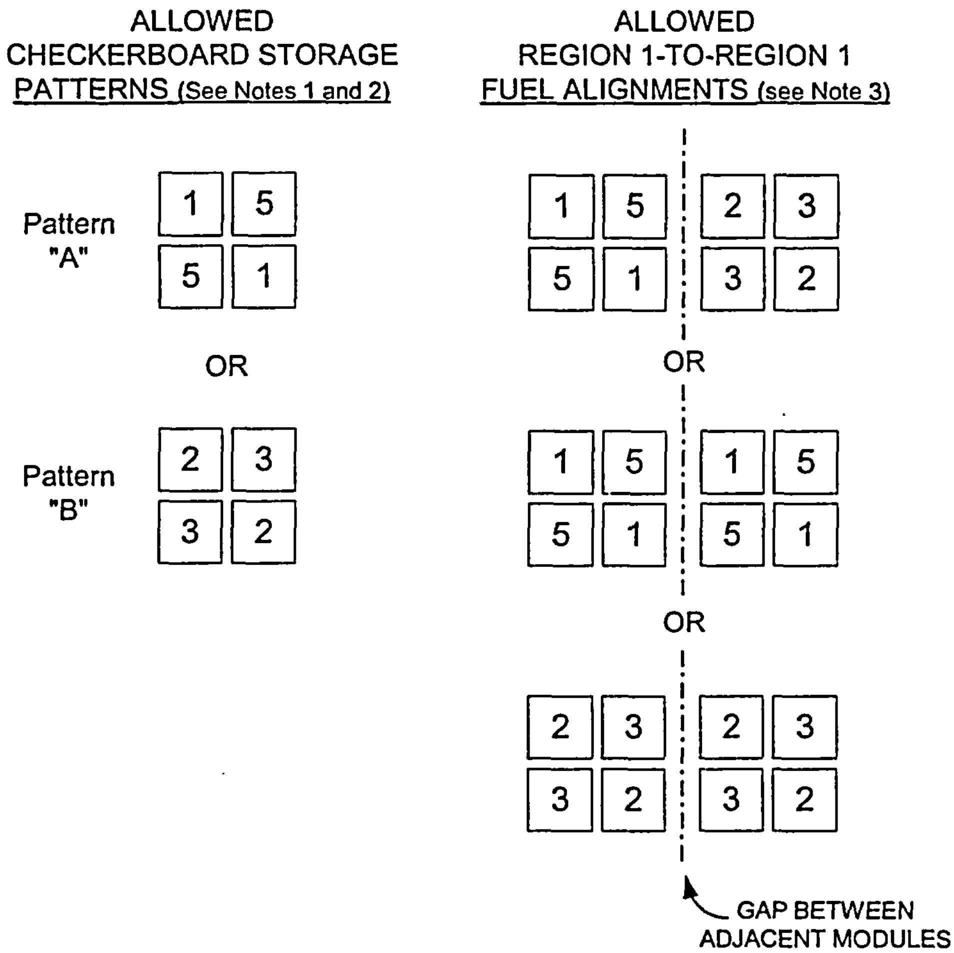
5.7.1 Those structures, systems and components identified as seismic Class I in Section 3.2.1 of the FSAR shall be designed and maintained to the original design provisions contained in Section 3.7 of the FSAR with allowance for normal degradation pursuant to the applicable Surveillance Requirement.

5.8 METEOROLOGICAL TOWER LOCATION

5.8.1 The meteorological tower location shall be as shown on Figure 5.1-1.

5.9 COMPONENT CYCLE OR TRANSIENT LIMITS

5.9.1 The components identified in Table 5.9-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.9-1.



NOTES:

1. Numbering denotes fuel assembly type. Minimum burnup requirements for fuel assembly types 1, 2, 3, and 5 are defined in Tables 5.6-1 and 5.6-2.

2. The storage arrangement of fuel within a rack module may contain more than one pattern. Different fuel storage patterns within a rack module must be separated by an empty row of cells.

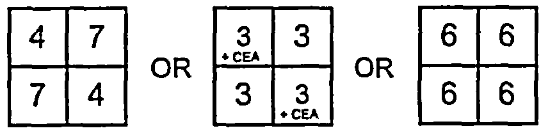
3. Interface restrictions on fuel placement apply between adjacent Region 1 rack modules. No interface restrictions apply between Region 1 racks and adjacent Region 2 racks.

4. Open cells within any checkerboard pattern are acceptable.

FIGURE 5.6-1
Allowable Region 1 Storage Patterns and Fuel Alignments

ALLOWED
CHECKERBOARD STORAGE
PATTERNS (See Notes 1 and 2)

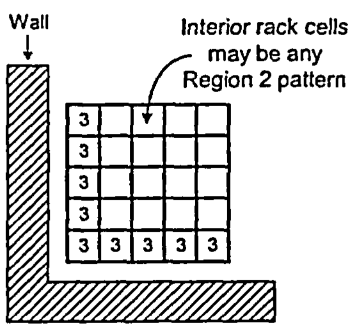
RACK INTERFACE
RESTRICTIONS



Pattern "C" Pattern "D" Pattern "E"

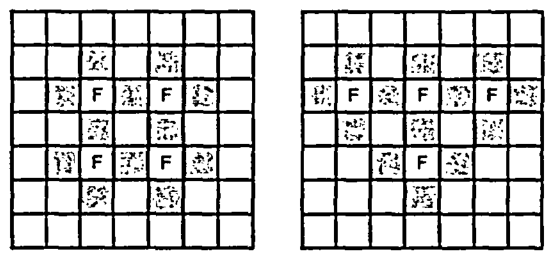
NONE

ALLOWED SPECIAL
ARRANGEMENTS:



(See Note 3)

Fresh Fuel Assemblies in Pattern "C" or Pattern "E" racks



F = FRESH FUEL ASSEMBLY

= EMPTY CELL (See Note 4)

NOTES:

1. Numbering denotes fuel assembly type. Minimum burnup requirements for fuel assembly types 3, 4, 6, and 7 are defined in Tables 5.6-1 and 5.6-2.

2. The storage arrangement within a rack module may contain more than one checkerboard pattern (patterns "C," "D," or "E") provided an empty row of cells separates the patterns.

3. Fuel in peripheral cells need not contain CEAs. An empty row of cells separating these peripheral cells from the interior pattern is not required. Cells on the Region 2 periphery that form interior corners do not qualify for this arrangement.

4. Cells required to be empty as part of an allowed special arrangement may contain non-actinide material, such as an empty fuel assembly skeleton, as long as the material occupies no more than 75% of the cell volume.

5. Open cells within any checkerboard pattern are acceptable.

FIGURE 5.6-2
Allowable Region 2 Storage Patterns and Arrangements

TABLE 5.6-1
Minimum Burnup as a Function of Enrichment for Non-Blanketed Assemblies

Fuel Type	Cooling Time	Coefficients			Minimum Burnup (GWd/MTU) for Initial Enrichment			
		A	B	C	1.9 w/o	2.5 w/o	3.0 w/o	3.8 w/o
1	0 years	0.00	9.31	-24.39	0.00	0.00	3.54	10.99
2	0 years	0.00	10.51	-22.35	0.00	3.93	9.18	17.59
3	0 years	0.00	10.97	-14.71	6.13	12.72	18.20	26.98
4	0 years	-0.41	17.00	-21.39	9.43	18.55	25.92	37.29
	12 years	-0.54	16.22	-20.63	8.24	16.55	23.17	33.21
	15 years	-0.53	15.86	-20.07	8.15	16.27	22.74	32.54
	20 years	-0.46	15.11	-18.80	8.25	16.10	22.39	31.98
5	0 years	-0.74	17.49	-19.72	10.84	19.38	26.09	36.06
	5 years	-0.56	15.64	-17.65	10.04	17.95	24.23	33.70
6	0 years	-0.41	17.70	-17.97	14.18	23.72	31.44	43.37
	12 years	0.04	13.10	-12.56	12.47	20.44	27.10	37.80
	15 years	0.13	12.38	-11.83	12.16	19.93	26.48	37.09
	20 years	0.26	11.56	-11.16	11.74	19.37	25.86	36.52
7	0 years	-0.65	20.08	-16.52	19.29	29.62	37.87	50.40
	12 years	-0.65	17.76	-15.58	15.82	24.76	31.85	42.52
	15 years	-0.43	16.25	-13.84	15.48	24.10	31.04	41.70
	20 years	0.12	12.90	-9.61	15.33	23.39	30.17	41.14

NOTES:

1. Enter this table for a "non-blanketed assembly"; defined as a fuel assembly without any designed axial variation in uranium-235 enrichment to control the axial burnup distribution.

2. To qualify in a fuel type, the calculated burnup of a fuel assembly must exceed the "minimum burnup" given in the table for the "cooling time" and "initial enrichment" of the fuel assembly. Alternatively, for fuel assembly characteristics between the increments depicted in the table, "minimum burnup" may be calculated by inserting the "coefficients" for the associated "type" and "cooling time" into the polynomial function:

   $BU = A*E^2 + B*E + C$ where:

   BU = Minimum Burnup (GWD/MTU)

   E = Initial Maximum Planar Average Enrichment (weight percent uranium-235)

   A, B, C = Coefficients

3. Interpolation between values of cooling time is not permitted.

TABLE 5.6-2
Minimum Burnup as a Function of Enrichment for Blanketed Assemblies

Fuel Type	Cooling Time	Coefficients			Minimum Burnup (GWd/MTU) for Initial Enrichment				
		A	B	C	2.5 w/o	3.0 w/o	3.5 w/o	4.0 w/o	4.5 w/o
1	0 years	0.00	9.31	-24.39	0.00	3.54	8.20	12.85	17.51
2	0 years	0.00	10.51	-22.35	3.93	9.18	14.44	19.69	24.95
3	0 years	0.00	10.97	-14.71	12.72	18.20	23.69	29.17	34.66
4	0 years	-0.98	18.97	-22.54	18.76	25.55	31.85	37.66	42.98
	5 years	-0.74	16.54	-19.10	17.63	23.86	29.73	35.22	40.35
	10 years	-0.57	14.73	-16.49	16.77	22.57	28.08	33.31	38.25
	15 years	-0.46	13.54	-14.70	16.28	21.78	27.06	32.10	36.92
	20 years	-0.41	12.98	-13.74	16.15	21.51	26.67	31.62	36.37
5	0 years	-0.74	17.49	-19.72	19.38	26.09	32.43	38.40	44.00
	5 years	-0.56	15.64	-17.65	17.95	24.23	30.23	35.95	41.39
6	0 years	-0.24	14.23	-10.38	23.70	30.15	36.49	42.70	48.80
	5 years	-0.20	13.10	-9.24	22.26	28.26	34.16	39.96	45.66
	10 years	-0.23	12.70	-9.27	21.04	26.76	32.36	37.85	43.22
	15 years	-0.32	13.02	-10.48	20.07	25.70	31.17	36.48	41.63
	20 years	-0.47	14.08	-12.85	19.41	25.16	30.67	35.95	40.99
7	0 years	-0.84	19.25	-13.42	29.46	36.77	43.67	50.14	56.20
	5 years	-0.72	17.40	-12.03	26.97	33.69	40.05	46.05	51.69
	10 years	-0.66	16.32	-11.46	25.22	31.56	37.58	43.26	48.62
	15 years	-0.67	16.00	-11.73	24.08	30.24	36.06	41.55	46.70
	20 years	-0.76	16.45	-12.81	23.57	29.70	35.46	40.83	45.83

NOTES:

1. Enter this table for a "blanketed assembly"; defined as a fuel assembly with designed axial variation in uranium-235 enrichment to control the axial burnup distribution. Use Table 5.6-1 to characterize blanketed assemblies having a central zone initial planar average enrichment of less than 2.5 w/o.

2. To qualify in a fuel type, the calculated burnup of a fuel assembly must exceed the "minimum burnup" given in the table for the "cooling time" and "initial enrichment" of the fuel assembly. Alternatively, for fuel assembly characteristics between the increments depicted in the table, "minimum burnup" may be calculated by inserting the "coefficients" for the associated "type" and "cooling time" into the polynomial function:

   $BU = A*E^2 + B*E + C$ where:

   BU = Minimum Burnup (GWD/MTU)

   E = Initial Maximum Planar Average Enrichment (weight percent uranium-235)

   A, B, C = Coefficients

3. Interpolation between values of cooling time is not permitted