

INDEXLIMITING CONDITION FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
3/4.9.12 FUEL BUILDING VENTILATION SYSTEM - FUEL MOVEMENT .....	3/4 9-13
3/4.9.14 SPENT FUEL POOL STORAGE .....	3/4 9-15
3/4.9.15 FUEL STORAGE POOL BORON CONCENTRATION .....	3/4 9-17
 <u>3/4.10 SPECIAL TEST EXCEPTIONS</u>	
3/4.10.1 SHUTDOWN MARGIN .....	3/4 10-1
3/4.10.2 GROUP HEIGHT, INSERTION AND POWER DISTRIBUTION LIMITS .....	3/4 10-2
3/4.10.3 PHYSICS TESTS .....	3/4 10-3
3/4.10.4 REACTOR COOLANT LOOPS .....	3/4 10-4
 <u>3/4.11 RADIOACTIVE EFFLUENTS</u>	
3/4.11.1 LIQUID EFFLUENTS	
3/4.11.1.4 Liquid Holdup Tanks .....	3/4 11-2
3/4.11.2 GASEOUS EFFLUENTS	
3/4.11.2.5 Gaseous Waste Storage Tanks .....	3/4 11-4
3/4.11.2.6 Explosive Gas Mixture .....	3/4 11-5

BASES

<u>SECTION</u>	<u>PAGE</u>
<u>3/4.0 APPLICABILITY</u> .....	B 3/4 0-1
 <u>3/4.1 REACTIVITY CONTROL SYSTEMS</u>	
3/4.1.1 BORATION CONTROL .....	B 3/4 1-1
3/4.1.2 BORATION SYSTEMS .....	B 3/4 1-2
3/4.1.3 MOVABLE CONTROL ASSEMBLIES .....	B 3/4 1-4

LIMITING CONDITION FOR OPERATION

3.9.14 The combination of initial enrichment and burnup of each fuel assembly stored in the spent fuel storage pool shall comply with the limits specified in Table 3.9-1.

APPLICABILITY: Whenever any fuel assembly is stored in the spent fuel storage pool.

ACTION: With the above requirements not satisfied:

- a. Immediately initiate action to move the non-complying fuel assembly to a location that complies with Table 3.9-1.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.14 Verify, by administrative means, the initial enrichment and burnup complies with Table 3.9-1 prior to storing a fuel assembly in the spent fuel storage pool.

Table 3.9-1

FUEL ASSEMBLY MINIMUM BURNUP VS. U-235 NOMINAL ENRICHMENT  
FOR STORAGE IN SPENT FUEL RACK REGIONS 1,2,3

Nominal Enrichment (w/o U-235)	Region 3 4-out-of-4 Burnup (MWD/MTU)	Region 2 3-out-of-4 Checkerboard Burnup (MWD/MTU)	Region 1 2-out-of-4 Checkerboard Burnup (MWD/MTU)
1.9	0	0	0
2.0	1615	0	0
2.2	4629	0	0
2.4	7295	0	0
2.6	9677	0	0
2.8	11877	1798	0
3.0	13995	3556	0
3.2	16112	5268	0
3.4	18235	6940	0
3.6	20349	8581	0
3.8	22443	10198	0
4.0	24503	11800	0
4.2	26519	13394	0
4.4	28492	14979	0
4.6	30428	16552	0
4.8	32329	18110	0
5.0	34201	19650	0

Note 1: Linear interpolation yields conservative results.

### 3/4.9.15 FUEL STORAGE POOL BORON CONCENTRATION

#### LIMITING CONDITION FOR OPERATION

3.9.15 The fuel storage pool boron concentration shall be greater than or equal to 2000 ppm.

APPLICABILITY: When fuel assemblies are stored in the fuel storage pool.

ACTION: With fuel storage pool boron concentration not within limits,

- a. Immediately suspend all operations involving the movement of fuel assemblies in the fuel storage pool and initiate action to restore the fuel storage pool boron concentration to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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

5.0 DESIGN FEATURES

---

5.1 SITE LOCATION

The Beaver Valley Power Station Unit No. 2 is located in Shippingport Borough, Beaver County, Pennsylvania, on the south bank of the Ohio River. The site is approximately 1 mile southeast of Midland, Pennsylvania, 5 miles east of East Liverpool, Ohio, and approximately 25 miles northwest of Pittsburgh, Pennsylvania. The exclusion area boundary has a minimum radius of 2000 feet around the Unit No. 1 containment building.

5.2 REACTOR CORE5.2.1 FUEL ASSEMBLIES

The reactor shall contain 157 fuel assemblies. Each assembly shall consist of a matrix of Zircaloy or ZIRLO fuel rods with an initial composition of natural or slightly enriched uranium dioxide ( $\text{UO}_2$ ) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions.

5.2.2 CONTROL ROD ASSEMBLIES

The reactor core shall contain 48 full length and no part length control rod assemblies. The full length control rod assemblies shall contain a nominal 142 inches of absorber material. The nominal values of absorber material shall be 80 percent silver, 15 percent indium and 5 percent cadmium. All control rods shall be clad with stainless steel tubing.

5.3 FUEL STORAGE5.3.1 CRITICALITY

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

- a.  $K_{\text{eff}} < 1.0$  if fully flooded with unborated water, which includes an allowance for uncertainties as described in UFSAR Section 9.1;
- b. Fuel assemblies having a maximum U-235 enrichment as set forth in Specification 3.9.14;

- c.  $K_{eff} \leq 0.95$  if fully flooded with water borated to 450 ppm, which includes an allowance for uncertainties as described in UFSAR Section 9.1;
- d. A minimum center to center distance between fuel assemblies placed in the fuel storage racks of 10.4375 inches;
- e. Fuel assembly storage shall comply with the requirements of Specification 3.9.14.

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

- a. Fuel assemblies having a maximum U-235 enrichment of 4.85 weight percent;
- b.  $K_{eff} \leq 0.95$  if fully flooded with unborated water, which includes an allowance for uncertainties as described in UFSAR Section 9.1;
- c.  $K_{eff} \leq 0.95$  if moderated by aqueous foam, which includes an allowance for uncertainties as described in UFSAR Section 9.1;
- d. A nominal 21 inch center to center distance between fuel assemblies placed in the storage racks.

#### 5.3.2 DRAINAGE

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 751'-3".

#### 5.3.3 CAPACITY

The fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1088 fuel assemblies.