

ACTIVITY CONTROL SYSTEMS

MODERATOR TEMPERATURE COEFFICIENT

LIMITING CONDITION FOR OPERATION

3.1.1.3 The moderator temperature coefficient (MTC) shall be:

- a. Less positive than  $0.9 \times 10^{-2} \Delta k/k/^{\circ}F$  whenever THERMAL POWER is < 95% of RATED THERMAL POWER.
- b. Less positive than  $0.0 \times 10^{-2} \Delta k/k/^{\circ}F$  whenever THERMAL POWER is  $\geq$  95% of RATED THERMAL POWER, and
- c. Equal to or less negative than  ~~$-3.0 \times 10^{-2} \Delta k/k/^{\circ}F$~~  at RATED THERMAL POWER.

*(The limit provided in the CORE OPERATING LIMITS REPORT)*  
APPLICABILITY: MODES 1 and 2\*<sup>f</sup>.

ACTION:

With the moderator temperature coefficient outside any of the above limits, be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.1.3.1 The MTC shall be determined to be within its limits by confirmatory measurements. MTC measured values shall be extrapolated and/or compensated to permit direct comparison with the above limits.

4.1.1.3.2 The MTC shall be determined at the following frequencies and THERMAL POWER conditions during each fuel cycle:

- a. Prior to initial operation above 5% of RATED THERMAL POWER, after each fuel loading.
- b. At any THERMAL POWER, within 7 days after reaching a RATED THERMAL POWER equilibrium boron concentration of 300 ppm.

\*With  $k_{eff} \geq 1.0$ .

<sup>f</sup>See Special Test Exception 3.10.2.

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ADMINISTRATIVE CONTROLS

microcuries per gram as a function of time for the duration of the specific activity above the steady-state level; and (5) The time duration when the specific activity of the primary coolant exceeded the radioiodine limit.

MONTHLY OPERATING REPORT

6.9.1. Routine reports of operating statistics, shutdown experience and chiller tests, the Pressurizer Pilot Operated Relief Valve (PORV) and the Pressurizer Code Safety Valves shall be submitted on a monthly basis to arrive no later than the 15th of each month following the calendar month covered by the report, as follows: The signed original to the Nuclear Regulatory Commission, Document Control Desk, Washington, D. C. 20555, and one copy each to the Region III Administrator and the Davis-Besse Resident Inspector.

CORE OPERATING LIMITS REPORT

6.9.1.7 Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT before each reload cycle and any remaining part of a reload cycle for the following:

- 3.1.1.3c Negative Moderator Temperature Coefficient Limit
- 3.1.3.6 Regulating Rod Insertion Limits
- 3.1.3.7 Rod Program
- 3.1.3.8 Xenon Reactivity
- 3.1.3.9 Axial Power Shaping Rod Insertion Limits
- 3.2.1 AXIAL POWER IMBALANCE
- 3.2.4 QUADRANT POWER TILT

The analytical methods used to determine the core operating limits addressed by the individual Technical Specifications shall be those previously reviewed and approved by the NRC, specifically:

- 1) BAW-10122A Rev. 1, "Normal Operating Controls" May 1984
- 2) BAW-10116A, "Assembly Calculations and Fitted Nuclear Data," May 1977
- 3) BAW-10117P-A, "Babcock & Wilcox Version of PDQ User's Manual," January 1977
- 4) BAW-10118A, "Core Computational Techniques and Procedures," December 1979
- 5) BAW-10124A, "FLAME 3 - A Three-Dimensional Nodal Code for Calculating Core Reactivity and Power Distributions," August 1976
- 6) BAW-10125A, "Verification of Three-Dimensional FLAME Code," August 1976
- 7) BAW-10152A, "NOODLE - A Multi-Dimensional Two-Group Reactor Simulator," June 1985

- 3.2.1 Figure 5a AXIAL POWER IMBALANCE  
Limits, 0 to 30  
+10/-0 EFPD, Four RC Pumps
- 3.2.1 Figure 5b AXIAL POWER IMBALANCE  
Limits, 30 +10/-0 to 75  
+10/-0 EFPD, Four RC  
Pumps
- 3.2.1 Figure 5c AXIAL POWER IMBALANCE  
Limits, 75 +10/-0 to 335 ±10  
EFPD, Four RC Pumps
- 3.2.1 Figure 5d AXIAL POWER IMBALANCE  
Limits, After 335 ±10 EFPD,  
Four RC Pumps
- 3.2.1 Figure 6a AXIAL POWER IMBALANCE  
Limits, 0 to 30 +10/-0 EFPD,  
Three RC Pumps
- 3.2.1 Figure 6b AXIAL POWER IMBALANCE  
Limits, 30 +10/-0 to 75  
+10/-0 EFPD, Three RC Pumps
- 3.2.1 Figure 6c AXIAL POWER IMBALANCE  
Limits 75 +10/-0 to 335  
±10 EFPD, Three RC Pumps
- 3.2.1 Figure 6d AXIAL POWER IMBALANCE  
Limits, After 335 ±10 EFPD,  
Three RC Pumps
- 3.2.4 Table 1 QUADRANT POWER TILT Limits
- 3.1.1.3c Table 2 Negative Moderator Temperature  
Coefficient Limit

TOLEDO EDISON

DAVIS-BESSE UNIT 1

CYCLE 7

CORE OPERATING LIMITS REPORT

1.0 Core Operating Limits

This CORE OPERATING LIMITS REPORT for DB-1 Cycle 7 has been prepared in accordance with the requirements of Technical Specification 6.9.1.7. The core operating limits have been developed using the methodology provided in the references.

The following cycle-specific core operating limits are included in this report:

- 1) Regulating rod insertion limits
- 2) Rod program group positions
- 3) Axial power shaping rod insertion limits
- 4) AXIAL POWER IMBALANCE operating limits and
- 5) QUADRANT POWER TILT limits/  
6) *Negative Moderator Temperature Coefficient limits.*

2.0 References

- 1) B&W Fuel Company, Topical Report BAW-10122A Rev. 1, "Normal Operating Controls", May 1984
- 2) B&W Fuel Company, Topical Report BAW-10116A, "Assembly Calculations and Fitted Nuclear Data", May 1977
- 3) B&W Fuel Company, Topical Report BAW-10117P-A, "Babcock & Wilcox Version of FDO User's Manual", January 1977
- 4) B&W Fuel Company, Topical Report BAW-10118A, "Core Computational Techniques and Procedures", December 1979.
- 5) B&W Fuel Company, Topical Report BAW-10124A, "FLAME 3 - A Three-Dimensional Nodal Code for Calculating Core Reactivity and Power Distributions", August 1976
- 6) B&W Fuel Company, Topical Report BAW-10125A, "Verification of Three-Dimensional FLAME Code", August 1976
- 7) B&W Fuel Company, Topical Report BAW-10152A, "NOODLE - A Multi-Dimensional Two-Group Reactor Simulator", June 1985

- 8) B&W Fuel Company, Topical Report BAW-10119, "Power Peaking Nuclear Reliability Factors", June 1977
- 9) Log Number 3139, dated January 11, 1990 (T. V. Wambach (NRC) to D. C. Shelton (TE)). (NRC SER for Rod Program)
- 10) Log Number —, dated — ( — (NRC) to D.C. Shelton (TE)). (NRC SER for Negative Moderator Temperature Coefficient Limit)

Table 2 Negative Moderator Temperature Coefficient Limit

This Table is referred  
to by Technical Specification  
3.1.1.3c

Negative Moderator Temperature Coefficient Limit      -       $-3.62 \times 10^{-4} \Delta k/k/^{\circ}F$   
(at RATED THERMAL POWER)