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August 13, 2001  
L-01-107

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

**Subject: Beaver Valley Power Station, Unit Nos. 1 and 2  
Docket No. 50-334, License No. DPR-66  
Docket No. 50-412, License No. NPF-73  
Unit No. 1, Cycle 14 and Unit No. 2, Cycle 9 Core Operating Limits  
Report Updates**

Midcycle revisions to the Beaver Valley Power Station (BVPS) Unit Nos. 1 and 2 Core Operating Limits Report (COLR) are provided herein pursuant to Technical Specification (TS) 6.9.5.d. The COLR for each unit has been revised to incorporate TS relocations and other changes that result from the implementation of Amendment Nos. 239 and 120, "Revised Thermal Design Procedure," for the remainder of fuel cycle 14 and fuel cycle 9, for BVPS Unit Nos. 1 and 2, respectively. Amendment Nos. 239 and 120 were approved and issued by the NRC on July 20, 2001, and supplemented by NRC letter dated July 30, 2001. The affected COLR pages for Unit No. 1 are provided as Attachment 1, and the affected COLR pages for Unit No. 2 are provided as Attachment 2.

If you have any questions, please contact Mr. Thomas S. Cosgrove, Manager, Licensing at 724-682-5203.

Sincerely,



Lew W. Myers

Attachments:  
As stated

c: Mr. L. J. Burkhart, Project Manager  
Mr. D. M. Kern, Sr. Resident Inspector  
Mr. H. J. Miller, NRC Region I Administrator  
Mr. L. E. Ryan (BRP/DEP)

A001

ATTACHMENT 1

Beaver Valley Power Station, Unit No. 1  
Core Operating Limits Report, Cycle 14, Revision 19

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The following is a list of the affected pages:

4.1-7 (new)

4.1-8 (new)

4.1-9 (new)

BVPS-1  
LICENSING REQUIREMENTS MANUAL

Specification 3.3.1.1 Reactor Trip System Instrumentation Setpoints, Table 3.3-1 Table Notations A and B

Overtemperature  $\Delta T$  Setpoint Parameter Values:

<u>Parameter</u>	<u>Value</u>
Overtemperature $\Delta T$ reactor trip setpoint	$K1 \leq 1.259$
Overtemperature $\Delta T$ reactor trip setpoint $T_{avg}$ coefficient	$K2 \geq 0.01655/^{\circ}F$
Overtemperature $\Delta T$ reactor trip setpoint pressure coefficient	$K3 \geq 0.000801/psia$
$T_{avg}$ at RATED THERMAL POWER	$T' \leq 576.2^{\circ}F$
Nominal Pressurizer Pressure	$P' \geq 2250 psia$
Measured reactor vessel average temperature lead/lag time constants	$\tau_1 \geq 30 \text{ secs}$ $\tau_2 \leq 4 \text{ secs}$

$f(\Delta I)$  is a function of the indicated difference between top and bottom detectors of the power-range nuclear ion chambers; with gains to be selected based on measured instrument response during plant startup tests such that:

- (i) for  $q_t - q_b$  between -36 percent and +15 percent,  $f(\Delta I) = 0$  (where  $q_t$  and  $q_b$  are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and  $q_t + q_b$  is total THERMAL POWER in percent of RATED THERMAL POWER).
- (ii) for each percent that the magnitude of  $(q_t - q_b)$  exceeds -36 percent, the  $\Delta T$  trip setpoint shall be automatically reduced by 2.08 percent of its value at RATED THERMAL POWER.
- (iii) for each percent that the magnitude of  $(q_t - q_b)$  exceeds +15 percent, the  $\Delta T$  trip setpoint shall be automatically reduced by 1.59 percent of its value at RATED THERMAL POWER.

Overpower  $\Delta T$  Setpoint Parameter Values:

<u>Parameter</u>	<u>Value</u>
Overpower $\Delta T$ reactor trip setpoint	$K4 \leq 1.0916$
Overpower $\Delta T$ reactor trip setpoint $T_{avg}$ rate/lag coefficient	$K5 \geq 0.02/^{\circ}F$ for increasing average temperature

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Overpower  $\Delta T$  Setpoint Parameter Values (continued):

<u>Parameter</u>	<u>Value</u>
Overpower $\Delta T$ reactor trip setpoint $T_{avg}$ heatup coefficient	$K6 \geq 0.00128/^\circ F$ for $T > T''$ $K6 = 0/^\circ F$ for $T \leq T''$
$T_{avg}$ at RATED THERMAL POWER	$T'' \leq 576.2^\circ F$
Measured reactor vessel average temperature rate/lag time constant	$\tau_3 \geq 10$ secs

Specification 3.2.5 DNB Parameters

<u>Parameter</u>	<u>Indicated Value</u>
Reactor Coolant System $T_{avg}$	$T_{avg} \leq 580.0^\circ F^{(1)}$
Pressurizer Pressure	Pressure $\geq 2215$ psia <sup>(2)</sup>
Reactor Coolant System Total Flow Rate	Flow $\geq 267,400$ gpm <sup>(3)</sup>

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- (1) The Reactor Coolant System (RCS)  $T_{avg}$  value includes allowances for rod control operation and verification via control board indication.
  - (2) The pressurizer pressure value includes allowances for pressurizer pressure control operation and verification via control board indication.
  - (3) The RCS total flow rate includes allowances for normalization of the cold leg elbow taps with a beginning of cycle precision RCS flow calorimetric measurement and verification on a periodic basis via control board indication.

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LICENSING REQUIREMENTS MANUAL

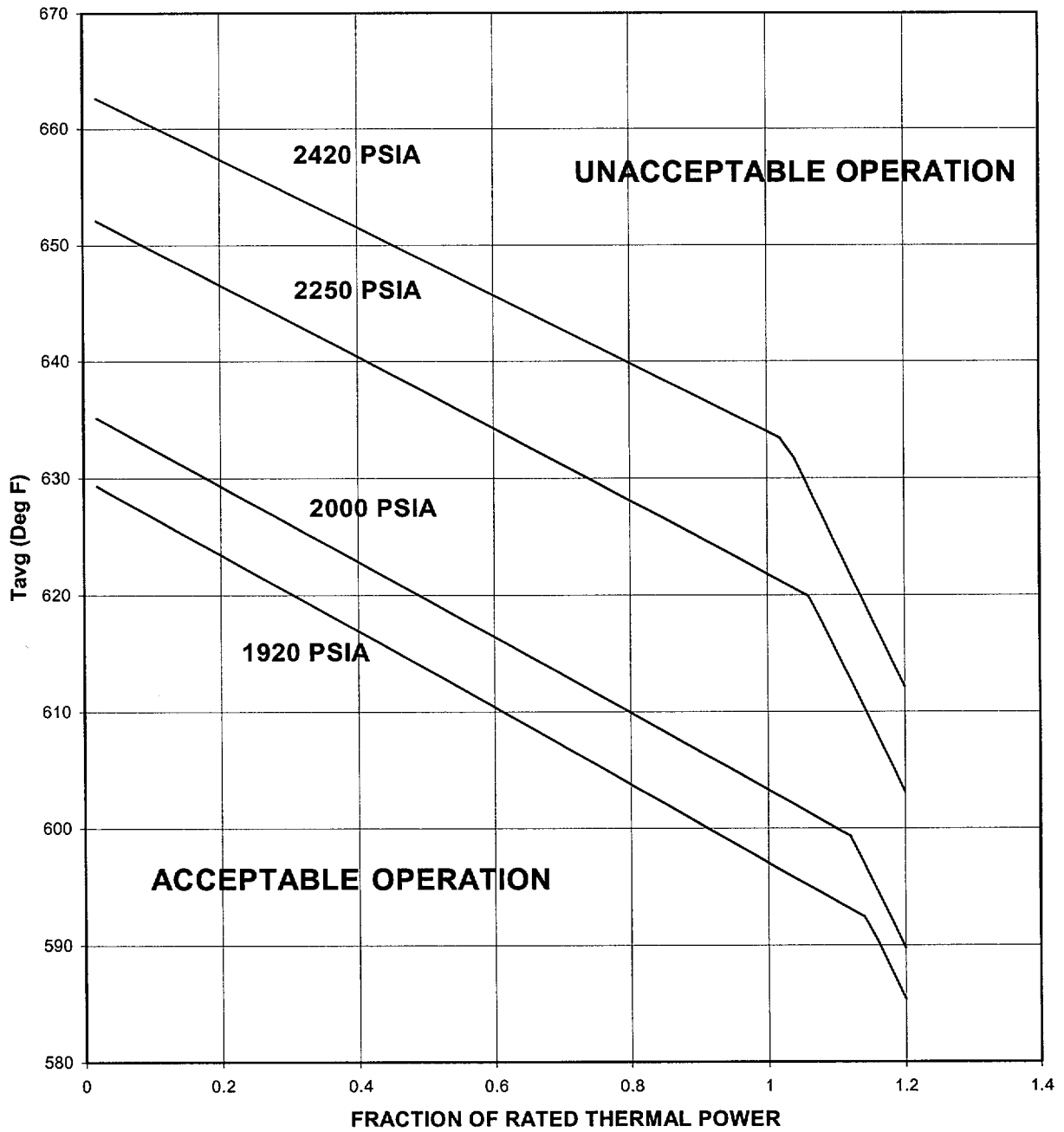


Figure 4.1-5  
REACTOR CORE SAFETY LIMIT  
THREE LOOP OPERATION  
(Technical Specification Safety Limit 2.1.1)

ATTACHMENT 2

Beaver Valley Power Station, Unit No. 2  
Core Operating Limits Report, Cycle 9, Revision 19

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The following is a list of the affected pages:

4.1-7 (new)

4.1-8 (new)

4.1-9 (new)

BVPS-2  
LICENSING REQUIREMENTS MANUAL

Specification 3.3.1.1 Reactor Trip System Instrumentation Setpoints, Table 3.3-1 Table Notations A and B

Overtemperature  $\Delta T$  Setpoint Parameter Values:

<u>Parameter</u>	<u>Value</u>
Overtemperature $\Delta T$ reactor trip setpoint	$K1 \leq 1.311$
Overtemperature $\Delta T$ reactor trip setpoint $T_{avg}$ coefficient	$K2 \geq 0.0183/^\circ F$
Overtemperature $\Delta T$ reactor trip setpoint pressure coefficient	$K3 \geq 0.00082/psia$
$T_{avg}$ at RATED THERMAL POWER	$T' \leq 576.2^\circ F$
Nominal pressurizer pressure	$P' \geq 2250 \text{ psia}$
Measured reactor vessel $\Delta T$ lead/lag time constants	$\tau_1 \geq 8 \text{ sec}$ $\tau_2 \leq 3 \text{ sec}$
Measured reactor vessel $\Delta T$ lag time constant	$\tau_3 \leq 0 \text{ sec}$
Measured reactor vessel average temperature lead/lag time constants	$\tau_4 \geq 30 \text{ sec}$ $\tau_5 \leq 4 \text{ sec}$
Measured reactor vessel average temperature lag time constant	$\tau_6 \leq 0 \text{ sec}$

$f(\Delta I)$  is a function of the indicated difference between top and bottom detectors of the power-range nuclear ion chambers; with gains to be selected based on measured instrument response during plant startup tests such that:

- (i) For  $q_t - q_b$  between -32% and +11%,  $f_1(\Delta I) = 0$ , where  $q_t$  and  $q_b$  are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and  $q_t + q_b$  is total THERMAL POWER in percent of RATED THERMAL POWER;
- (ii) For each percent that the magnitude of  $q_t - q_b$  exceeds -32%, the  $\Delta T$  Trip Setpoint shall be automatically reduced by 1.46% of its value at RATED THERMAL POWER; and
- (iii) For each percent that the magnitude of  $q_t - q_b$  exceeds +11%, the  $\Delta T$  Trip Setpoint shall be automatically reduced by 1.56% of its value at RATED THERMAL POWER.

Overpower  $\Delta T$  Setpoint Parameter Values:

<u>Parameter</u>	<u>Value</u>
Overpower $\Delta T$ reactor trip setpoint	$K4 \leq 1.094$

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LICENSING REQUIREMENTS MANUAL

Overpower  $\Delta T$  Setpoint Parameter Values (continued):

<u>Parameter</u>	<u>Value</u>
Overpower $\Delta T$ reactor trip setpoint $T_{avg}$ rate/lag coefficient	$K5 \geq 0.02/^\circ F$ for increasing average temperature $K5 = 0/^\circ F$ for decreasing average temperature
Overpower $\Delta T$ reactor trip setpoint $T_{avg}$ heatup coefficient	$K6 \geq 0.0012/^\circ F$ for $T > T''$ $K6 = 0/^\circ F$ for $T \leq T''$
$T_{avg}$ at RATED THERMAL POWER	$T'' \leq 576.2^\circ F$
Measured reactor vessel $\Delta T$ lead/lag time constants	$\tau_1 \geq 8$ sec $\tau_2 \leq 3$ sec
Measured reactor vessel $\Delta T$ lag time constant	$\tau_3 \leq 0$ sec
Measured reactor vessel average temperature lag time constant	$\tau_6 \leq 0$ sec
Measured reactor vessel average temperature rate/lag time constant	$\tau_7 \geq 10$ sec

Specification 3.2.5 DNB Parameters

<u>Parameter</u>	<u>Indicated Value</u>
Reactor Coolant System $T_{avg}$	$T_{avg} \leq 579.9^\circ F^{(1)}$
Pressurizer Pressure	Pressure $\geq 2214$ psia <sup>(2)</sup>
Reactor Coolant System Total Flow Rate	Flow $\geq 267,200$ gpm <sup>(3)</sup>

- (1) The Reactor Coolant System (RCS)  $T_{avg}$  value includes allowances for rod control operation and verification via control board indication.
- (2) The pressurizer pressure value includes allowances for pressurizer pressure control operation and verification via control board indication.
- (3) The RCS total flow rate includes allowances for normalization of the cold leg elbow taps with a beginning of cycle precision RCS flow calorimetric measurement and verification on a periodic basis via plant process computer. If periodic verification of flow rate is performed via control board indication, the required flow value is  $\geq 267,400$  gpm.



BVPS-2  
LICENSING REQUIREMENTS MANUAL

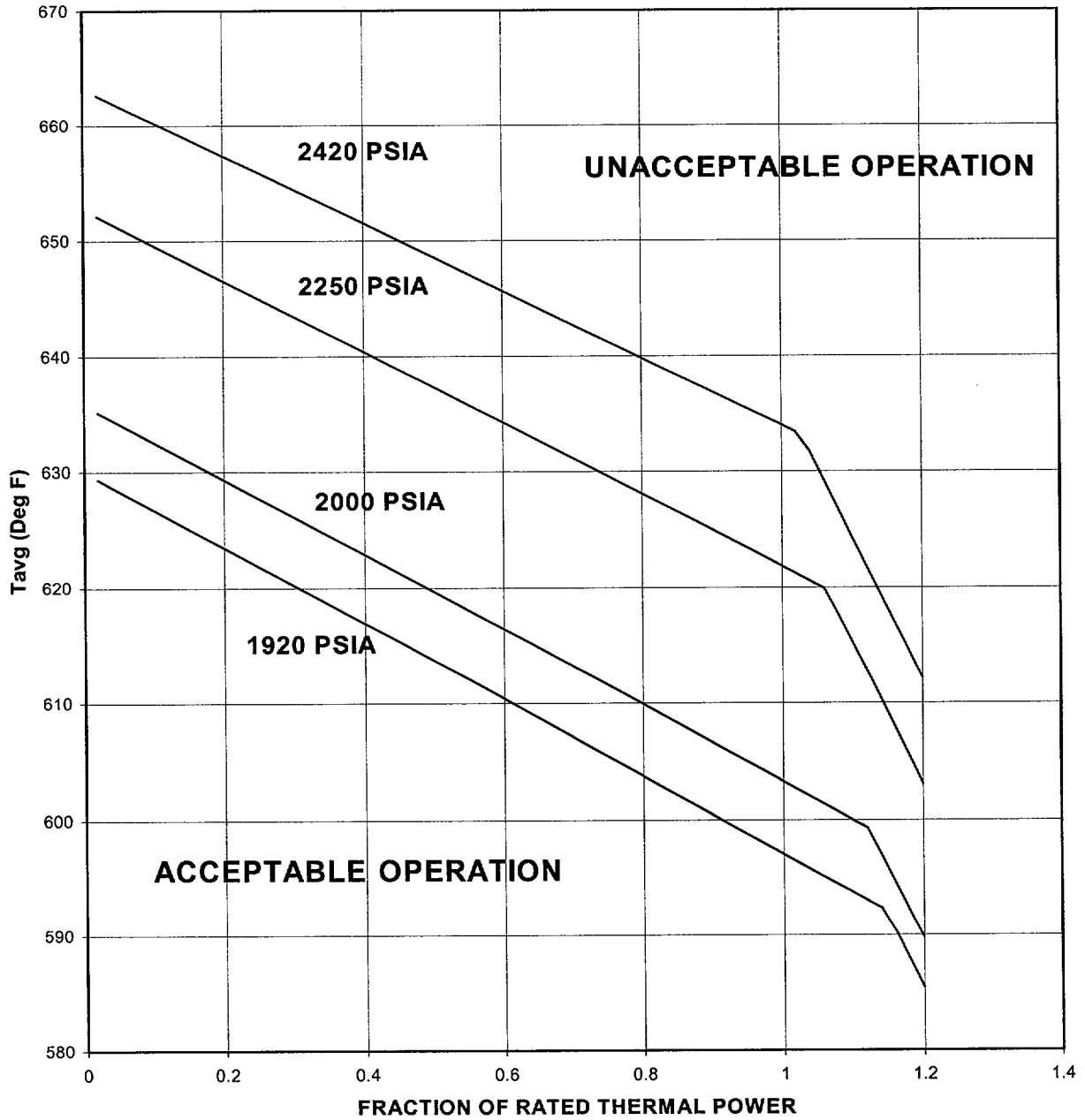


Figure 4.1-5  
REACTOR CORE SAFETY LIMIT  
THREE LOOP OPERATION  
(Technical Specification Safety Limit 2.1.1)