

ATTACHMENT 2

REVISED CLEAN TECHNICAL SPECIFICATIONS

The following pages depict the changes proposed to the existing Technical Specifications
in a re-typed format.

32 pages follow this cover sheet

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

In MODES 1 and 2, the combination of THERMAL POWER, Reactor Coolant System (RCS) highest loop average temperature, and pressurizer pressure shall not exceed the limits specified in the COLR; and the following SLs shall not be exceeded:

- 2.1.1.1 For Westinghouse fuel, the departure from nucleate boiling ratio (DNBR) shall be maintained ≥ 1.17 for the WRB-2 DNB correlation.
- 2.1.1.2 For Westinghouse fuel, the peak fuel centerline temperature shall be maintained $< 5080^{\circ}\text{F}$, decreasing by 58°F per 10,000 MWd/MTU of burnup.
- 2.1.1.3 For Framatome fuel, the DNBR shall be maintained ≥ 1.12 for the ORFEO-GAIA DNB correlation.
- 2.1.1.4 For Framatome fuel, the peak fuel centerline temperature shall be maintained $< 4901^{\circ}\text{F}$, decreasing linearly by 13.7°F per 10,000 MWd/MTU of burnup.

2.1.2 RCS Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained ≤ 2735 psig.

2.2 SL Violations

2.2.1 If SL 2.1.1 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

- 2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.
- 2.2.2.2 In MODE 3, 4, or 5, restore compliance within 5 minutes.

CHAPTER TABLE OF CONTENTS

CHAPTER 3.2

POWER DISTRIBUTION LIMITS

<u>Section</u>	<u>Page</u>
3.2.1A	Heat Flux Hot Channel Factor ($F_Q(Z)$) (F_Q Methodology) Westinghouse COLR Methods 3.2-1
	ACTIONS 3.2-1
	SURVEILLANCE REQUIREMENTS 3.2-3
3.2.1B	Heat Flux Hot Channel Factor ($F_Q(Z)$) Framatome COLR Methods 3.2-6
	ACTIONS 3.2-6
	SURVEILLANCE REQUIREMENTS 3.2-9
3.2.2A	Nuclear Enthalpy Rise Hot Channel Factor ($F_{\Delta H}^N$) Westinghouse COLR Methods 3.2-11
	ACTIONS 3.2-11
	SURVEILLANCE REQUIREMENTS 3.2-13
3.2.2B	Nuclear Enthalpy Rise Hot Channel Factor ($F_{\Delta H}^N$) Framatome COLR Methods 3.2-14
	ACTIONS 3.2-14
	SURVEILLANCE REQUIREMENTS 3.2-16
3.2.3A	AXIAL FLUX DIFFERENCE (AFD) (Relaxed Axial Offset Control (RAOC) Methodology) Westinghouse COLR Methods 3.2-17
	ACTIONS 3.2-17
	SURVEILLANCE REQUIREMENTS 3.2-17
3.2.3B	AXIAL FLUX DIFFERENCE (AFD) Framatome COLR Methods 3.2-18
	ACTIONS 3.2-18
	SURVEILLANCE REQUIREMENTS 3.2-19
3.2.4	QUADRANT POWER TILT RATIO (QPTR) 3.2-20
	ACTIONS 3.2-20
	SURVEILLANCE REQUIREMENTS 3.2-24

3.2 POWER DISTRIBUTION LIMITS

3.2.1A Heat Flux Hot Channel Factor (F_Q(Z))(F_Q Methodology) Westinghouse COLR Methods

LCO 3.2.1A F_Q(Z), as approximated by F_Q^C(Z) and F_Q^W(Z), shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

----- NOTE -----
This LCO is not applicable when Framatome COLR methods govern COLR development.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. F _Q ^C (Z) not within limit.	A.1 Reduce THERMAL POWER ≥ 1% RTP for each 1% F _Q ^C (Z) exceeds limit.	15 minutes after each F _Q ^C (Z) determination
	<u>AND</u>	
	A.2 Reduce Power Range Neutron Flux — High trip setpoints ≥ 1% for each 1% F _Q ^C (Z) exceeds limit.	72 hours after each F _Q ^C (Z) determination
	<u>AND</u>	
	A.3 Reduce Overpower ΔT trip setpoints ≥ 1% for each 1% F _Q ^C (Z) exceeds limit.	72 hours after each F _Q ^C (Z) determination
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 Perform SR 3.2.1A.1.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
B. F _Q ^w (Z) not within limits.	B.1 Reduce AFD limits ≥ 1% for each 1% F _Q ^w (Z) exceeds limit.	4 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 2	6 hours

SURVEILLANCE REQUIREMENTS

----- NOTE -----

During power escalation following shutdown, THERMAL POWER may be increased until an equilibrium power level has been achieved, at which a power distribution map is obtained.

SURVEILLANCE	FREQUENCY
SR 3.2.1A.1 Verify F _Q ^C (Z) is within limit.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP <u>AND</u> Once within 24 hours after achieving equilibrium conditions after exceeding, by ≥ 10% RTP, the THERMAL POWER at which F _Q ^C (Z) was last verified <u>AND</u> In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.2.1A.2 ----- NOTE -----</p> <p>If F_Q^C(Z) measurements indicate</p> <p>maximum over z $\left[\frac{F_Q^C(Z)}{K(Z)} \right]$</p> <p>has increased since the previous evaluation of F_Q^C(Z) :</p> <p>a. Increase F_Q^W(Z) by the appropriate factor specified in the COLR and reverify F_Q^W(Z) is within limits; or</p> <p>b. Repeat SR 3.2.1A.2 once per 7 EFPD until two successive power distribution measurements indicate.</p> <p>maximum over z $\left[\frac{F_Q^C(Z)}{K(Z)} \right]$</p> <p>has not increased.</p> <hr style="border-top: 1px dashed black;"/> <p>Verify F_Q^W(Z) is within limit</p>	<p>Once after each refueling prior to THERMAL POWER exceeding 75% RTP</p> <p>AND</p> <p>(continued)</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.1A.2 (continued)	Once within 24 hours after achieving equilibrium conditions after exceeding, by $\geq 10\%$ RTP, the THERMAL POWER at which was last verified <u>AND</u> In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.1B Heat Flux Hot Channel Factor [F_Q(Z)] Framatome COLR Methods

LCO 3.2.1B The F_Q(Z) as approximated by F_Q^C(Z) and F_Q^V(Z), shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

----- NOTE -----
This LCO is not applicable when Westinghouse COLR methods govern COLR development.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. F _Q ^C (Z) not within limit.	A.1 Reduce THERMAL POWER ≥ 1% RTP for each 1% F _Q ^C (Z) exceeds limit.	15 minutes after each F _Q ^C (Z) determination
	<u>AND</u>	
	A.2 Reduce Power Range Neutron Flux — High trip setpoints ≥ 1% for each 1% F _Q ^C (Z) exceeds limit.	72 hours after each F _Q ^C (Z) determination
	<u>AND</u>	
	A.3 Reduce Overpower ΔT trip setpoints ≥ 1% RTP for each 1% F _Q ^C (Z) exceeds limit.	72 hours after each F _Q ^C (Z) determination
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 Perform SR 3.2.1B.1 and SR 3.2.1B.2.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
B. $F_Q^V(Z)$ not within limits.	<p>B.1.1 Reduce the AFD limits based on the current target AFD band and V(z) function by \geq the appropriate amount (%AFD/%F_Q) specified in the COLR for each 1% the current $F_Q^V(Z)$ exceeds limit.</p> <p style="text-align: center;"><u>AND</u></p> <p>B.1.2 Perform SR 3.2.1B.1 and SR 3.2.1B.2.</p> <p style="text-align: center;"><u>OR</u></p> <p>B.2.1 Reduce THERMAL POWER \geq 1% RTP for each 1% $F_Q^V(Z)$ exceeds limit.</p> <p style="text-align: center;"><u>AND</u></p>	<p>4 hours</p> <p>Prior to restoration of AFD limits less restrictive than the limits of Required Action B.1.1</p> <p>4 hours</p> <p style="text-align: right;">(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2.2 Reduce Power Range Neutron Flux - High trip setpoints ≥ 1% for each 1% F _Q ^V (Z) exceeds limit. <u>AND</u>	72 hours
	B.2.3 Reduce Overpower ΔT trip setpoints ≥ 1% RTP for each 1% F _Q ^V (Z) exceeds limit. <u>AND</u>	72 hours
	B.2.4 Perform SR 3.2.1B.1 and SR 3.2.1B.2.	Prior to increasing THERMAL POWER above the limit of Required Action B.2.3.
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

----- NOTE -----
 During power escalation at the beginning of each cycle, THERMAL POWER may be increased until an equilibrium power level has been achieved, at which a power distribution map is obtained.

SURVEILLANCE	FREQUENCY
SR 3.2.1B.1 Verify $F_Q^C(Z)$ is within limit specified in the COLR.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP <u>AND</u> Once within 24 hours after achieving equilibrium conditions after exceeding, by $\geq 10\%$ RTP, the THERMAL POWER at which $F_Q^C(Z)$ was last verified <u>AND</u> In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.2.1B.2 Verify $F_Q^V(Z)$ is within limit specified in the COLR.	<p>Once after each refueling prior to THERMAL POWER exceeding 75% RTP</p> <p><u>AND</u></p> <p>Once within 24 hours after achieving equilibrium conditions after exceeding, by $\geq 10\%$ RTP, the THERMAL POWER at which $F_Q^V(Z)$ was last verified</p> <p><u>AND</u></p> <p>In accordance with the Surveillance Frequency Control Program</p>

3.2 POWER DISTRIBUTION LIMITS

3.2.2A Nuclear Enthalpy Rise Hot Channel Factor (F_{ΔH}^N) Westinghouse COLR Methods

LCO 3.2.2A F_{ΔH}^N shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

----- NOTE -----
This LCO is not applicable when Framatome COLR methods govern
COLR development.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. ----- NOTE ----- Required Actions A.2 and A.3 must be completed whenever Condition A is entered. -----</p> <p>F_{ΔH}^N not within limit.</p>	<p>A.1.1 Restore F_{ΔH}^N to within limit.</p> <p style="text-align: center;"><u>OR</u></p>	4 hours
	<p>A.1.2.1 Reduce THERMAL POWER to < 50% RTP.</p> <p style="text-align: center;"><u>AND</u></p>	4 hours
	<p>A.1.2.2 Reduce Power Range Neutron Flux - High trip setpoints to ≤ 55% RTP.</p> <p style="text-align: center;"><u>AND</u></p>	72 hours
	<p>A.2 Perform SR 3.2.2A.1.</p> <p style="text-align: center;"><u>AND</u></p>	24 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.3</p> <p>----- NOTE ----- THERMAL POWER does not have to be reduced to comply with this Required Action. -----</p> <p>Perform SR 3.2.2A.1.</p>	<p>Prior to THERMAL POWER exceeding 50% RTP</p> <p><u>AND</u></p> <p>Prior to THERMAL POWER exceeding 75% RTP</p> <p><u>AND</u></p> <p>24 hours after THERMAL POWER reaching ≥ 95% RTP</p>
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

----- NOTE -----

During power escalation following shutdown, THERMAL POWER may be increased until an equilibrium power level has been achieved, at which a power distribution map is obtained.

SURVEILLANCE	FREQUENCY
SR 3.2.2A.1 Verify F _{ΔH} ^N is within limits specified in the COLR.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP <u>AND</u> In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.2B Nuclear Enthalpy Rise Hot Channel Factor (F_{ΔH}^N) Framatome COLR Methods

LCO 3.2.2B F_{ΔH}^N shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

----- NOTE -----
This LCO is not applicable when Westinghouse COLR methods govern COLR development.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. ----- NOTE ----- Required Actions A.2 and A.3 must be completed whenever Condition A is entered. -----</p> <p>F_{ΔH}^N not within limit.</p>	<p>A.1.1 Restore F_{ΔH}^N to within limit.</p> <p style="text-align: center;"><u>OR</u></p> <p>A.1.2.1 Reduce THERMAL POWER to < 50% RTP.</p> <p style="text-align: center;"><u>AND</u></p> <p>A.1.2.2 Reduce Power Range Neutron Flux - High trip setpoints to ≤ 55% RTP.</p> <p style="text-align: center;"><u>AND</u></p> <p>A.2 Perform SR 3.2.2B.1.</p> <p style="text-align: center;"><u>AND</u></p>	<p>4 hours</p> <p>4 hours</p> <p>72 hours</p> <p>24 hours</p> <p style="text-align: right;">(continued)</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.3</p> <p>----- NOTE ----- THERMAL POWER does not have to be reduced to comply with this Required Action. -----</p> <p>Perform SR 3.2.2B.1.</p>	<p>Prior to THERMAL POWER exceeding 50% RTP</p> <p><u>AND</u></p> <p>Prior to THERMAL POWER exceeding 75% RTP</p> <p><u>AND</u></p> <p>24 hours after THERMAL POWER reaching ≥ 95% RTP</p>
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.2.2B.1</p> <p style="text-align: center;">----- NOTE -----</p> <p>If F_{ΔH}^N is within limits but two consecutive measurements indicate that F_{ΔH}^N is increasing with exposure, then:</p> <p>a. Increase F_Q^V(Z) by value specified in the COLR and re-verify that F_Q^V(Z) is within limits; or</p> <p>b. Perform SR 3.2.1B.2 and SR 3.2.3B.2 once per 7 EFPD until two successive measurements indicate F_{ΔH}^N is not increasing.</p> <p>-----</p> <p>Verify F_{ΔH}^N is within limits specified in the COLR.</p>	<p>Once after each refueling prior to THERMAL POWER exceeding 75% RTP</p> <p><u>AND</u></p> <p>In accordance with the Surveillance Frequency Control Program</p>

3.2 POWER DISTRIBUTION LIMITS

3.2.3A AXIAL FLUX DIFFERENCE (AFD) (Relaxed Axial Offset Control (RAOC) Methodology)
Westinghouse COLR Methods

LCO 3.2.3A The AFD in % flux difference units shall be maintained within the limits specified in the COLR.

----- NOTE -----
The AFD shall be considered outside limits when two or more OPERABLE excore channels indicate AFD to be outside limits.

APPLICABILITY: MODE 1 with THERMAL POWER \geq 50% RTP.

----- NOTE -----
This LCO is not applicable when Framatome COLR methods govern COLR development.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. AFD not within limits.	A.1 Reduce THERMAL POWER to < 50% RTP.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.3A.1 Verify AFD within limits for each OPERABLE excore channel.	In accordance with the Surveillance Frequency Control Program

3.2 POWER DISTRIBUTION LIMITS

3.2.3B AXIAL FLUX DIFFERENCE (AFD) Framatome COLR Methods

LCO 3.2.3B AFD shall be maintained within the AFD limits defined by the sum of the target AFD and the target AFD bandspecified in the COLR.

APPLICABILITY: MODE 1 with THERMAL POWER \geq 50% RTP.

----- NOTE -----
This LCO is not applicable when Westinghouse COLR Methods govern COLR development.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. ----- NOTE ----- AFD shall be considered not within its limits when two or more OPERABLE excore channels indicate AFD not within the limits. ----- AFD not within limits.</p>	<p>A.1 Reduce THERMAL POWER to < 50% RTP.</p>	<p>30 minutes</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3B.1	Verify AFD is within limits for each OPERABLE excore channel.	In accordance with the Surveillance Frequency Control Program
SR 3.2.3B.2	<p>----- NOTE -----</p> <p>a. The initial target AFD after each refueling may be determined from design predictions.</p> <p>b. Between measurements, the target AFD may be updated by adding the most recently measured AFD value and the change in the predicted AFD values since that measurement.</p> <p>c. Update, with the new 'target AFD' value, the 'AFD limits' based on the current 'target AFD band', which was expressed in deviation from the target AFD.</p> <p>-----</p> <p>Determine, at steady state and high power (as near RTP as practical), equilibrium xenon, and normal bank positions), the target AFD when $F_Q(Z)$ is measured in accordance with SR 3.2.1B.2.</p>	<p>Once within 31 EFPD after each refueling</p> <p><u>AND</u></p> <p>In accordance with Surveillance Frequency Control Program</p>

3.2 POWER DISTRIBUTION LIMITS

3.2.4 QUADRANT POWER TILT RATIO (QPTR)

LCO 3.2.4 The QPTR shall be ≤ 1.02 .

APPLICABILITY: MODE 1 with THERMAL POWER $> 50\%$ RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. QPTR not within limit.	A.1 Reduce THERMAL POWER $\geq 3\%$ from RTP for each 1% of QPTR > 1.00 .	2 hours after each QPTR determination
	<u>AND</u> A.2 Determine QPTR. <u>AND</u>	Once per 12 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.3</p> <p>----- NOTE ----- Perform applicable SR based on governing COLR development method. -----</p> <p>Perform SR 3.2.1A.1, SR 3.2.1A.2 and SR 3.2.2A.1.</p> <p><u>OR</u></p> <p>Perform SR 3.2.1B.1, SR 3.2.1B.2 and SR 3.2.2B.1.</p> <p><u>AND</u></p> <p>A.4</p> <p>Reevaluate safety analyses and confirm results remain valid for duration of operation under this condition.</p> <p><u>AND</u></p>	<p>24 hours after achieving equilibrium conditions from a THERMAL POWER reduction per Required Action A.1</p> <p><u>AND</u></p> <p>Once per 7 days thereafter</p> <p>Prior to increasing THERMAL POWER above the limit of Required Action A.1</p> <p>(continued)</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.5</p> <p>----- NOTES -----</p> <ol style="list-style-type: none"> 1. Perform Required Action A.5 only after Required Action A.4 is completed. 2. Required Action A.6 shall be completed whenever Required Action A.5 is performed. <p>-----</p> <p>Normalize excore detectors to restore QPTR to within limit.</p> <p><u>AND</u></p>	<p>Prior to increasing THERMAL POWER above the limit of Required Action A.1</p> <p>(continued)</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.6</p> <p>----- NOTES -----</p> <ol style="list-style-type: none"> 1. Perform Required Action A.6 only after Required Action A.5 is completed. 2. Perform applicable SR based on governing COLR development method. <p>-----</p> <p>Perform SR 3.2.1A.1, SR 3.2.1A.2 and SR 3.2.2A.1.</p> <p><u>OR</u></p> <p>Perform SR 3.2.1B.1, SR 3.2.1B.2 and SR 3.2.2B.1</p>	<p>24 hours after achieving equilibrium conditions not to exceed 48 hours after increasing THERMAL POWER above the limit of Required Action A.1</p>
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to \leq 50% RTP	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.2.4.1</p> <p>----- NOTE -----</p> <ol style="list-style-type: none"> 1. With input from one Power Range Neutron Flux channel inoperable and THERMAL POWER $\leq 75\%$ RTP, the remaining three power range channels can be used for calculating QPTR. 2. SR 3.2.4.2 may be performed in lieu of this Surveillance. <p>-----</p> <p>Verify QPTR is within limit by calculation.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.2.4.2</p> <p>----- NOTE -----</p> <p>Not required to be performed until 12 hours after input from one or more Power Range Neutron Flux channels are inoperable with THERMAL POWER $> 75\%$ RTP.</p> <p>-----</p> <p>Verify QPTR is within limit using power distribution measurement information.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

4.0 DESIGN FEATURES

4.1 Site Location

The Callaway Plant site consists of approximately 2,767 acres of rural land 10 miles southeast of the city of Fulton in Callaway County, Missouri, and 80 miles west of the St. Louis metropolitan area.

4.2 Reactor Core

4.2.1 Fuel Assemblies

The reactor shall contain 193 fuel assemblies. Each assembly shall consist of a matrix of zircalloy, ZIRLO™ or M5® clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO₂) as fuel material. Limited substitution of fuel rods by zirconium alloy or stainless steel filler rods may be used in accordance with approved applications of fuel rod configurations. 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 safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions.

4.2.2 Control Rod Assemblies

The reactor core shall contain 53 control rod assemblies. The control rod material shall be silver indium cadmium, hafnium metal, or a mixture of both types, as approved by the NRC.

4.3 Fuel Storage

4.3.1 Criticality

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

- a. Fuel assemblies having a maximum nominal U-235 enrichment of 5.0 weight percent; For fuel with enrichments greater than 4.6 nominal weight percent of U-235, the combination of enrichment and integral fuel burnable absorbers shall be sufficient so that the requirements of 4.3.1.1.b are met.

(continued)

CHAPTER TABLE OF CONTENTS (Continued)

<u>Section</u>	<u>Page</u>
5.6.5	CORE OPERATING LIMITS REPORT (COLR) 5.0-24
5.6.6	Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR) 5.0-27
5.6.7	Not used. 5.0-27
5.6.8	PAM Report 5.0-28
5.6.9	Not used. 5.0-28
5.6.10	Steam Generator Tube Inspection Report 5.0-28
5.7	High Radiation Area 5.0-29
5.7.1	High Radiation Areas with Dose Rates Not Exceeding 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation: 5.0-29
5.7.2	High Radiation Areas with Dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation: 5.0-30

5.6 Reporting Requirements (continued)

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

- a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:
 1. Moderator Temperature Coefficient limits in Specification 3.1.3,
 2. Shutdown Bank Insertion Limit for Specification 3.1.5,
 3. Control Bank Insertion Limits for Specification 3.1.6,
 4. Axial Flux Difference Limits for Specifications 3.2.3A and 3.2.3B,
 5. Heat Flux Hot Channel Factor, $F_Q(Z)$, F_Q^{RTP} , $K(Z)$, $W(Z)$ and F_Q Penalty Factors for Specification 3.2.1A, and F_{QZ}^C , F_{QZ}^V) , Measurement Uncertainty, Manufacturing Tolerance, and $V(z)$ for Specification 3.2.1B,
 6. Nuclear Enthalpy Rise Hot Channel Factor $F_{\Delta H}^N$, $F_{\Delta H}^{RTP}$, and Power Factor Multiplier, $PF_{\Delta H}$, limits for Specification 3.2.2A, and measured $F_{\Delta H}^N$, $F_{\Delta H}^N$ uncertainty, $U_{\Delta H}$ for Specification 3.2.2B,
 7. Shutdown Margin Limits for Specifications 3.1.1, 3.1.4, 3.1.5, 3.1.6, and 3.1.8,
 8. Reactor Core Safety Limits Figure for Specification 2.1.1,
 9. Overtemperature ΔT and Overpower ΔT Setpoint Parameters for Specification 3.3.1, and
 10. Reactor Coolant System Pressure and Temperature DNB Limits for Specification 3.4.1.
- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:
 1. WCAP-9272-P-A, "WESTINGHOUSE RELOAD SAFETY EVALUATION METHODOLOGY."

(continued)

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

2. WCAP-10216-P-A, "RELAXATION OF CONSTANT AXIAL OFFSET CONTROL AND FQ SURVEILLANCE TECHNICAL SPECIFICATION."
3. WCAP-10266-P-A, "THE 1981 VERSION OF WESTINGHOUSE EVALUATION MODEL USING BASH CODE."
4. WCAP-12610-P-A, "VANTAGE + FUEL ASSEMBLY REFERENCE CORE REPORT."
5. WCAP-11397-P-A, "REVISED THERMAL DESIGN PROCEDURE."
6. WCAP-14565-P-A, "VIPRE-01 MODELING AND QUALIFICATION FOR PRESSURIZED WATER REACTOR NON-LOCA THERMAL-HYDRAULIC SAFETY ANALYSIS."
7. WCAP-10851-P-A, "IMPROVED FUEL PERFORMANCE MODELS FOR WESTINGHOUSE FUEL ROD DESIGN AND SAFETY EVALUATIONS."
8. WCAP-15063-P-A, "WESTINGHOUSE IMPROVED PERFORMANCE ANALYSIS AND DESIGN MODEL (PAD 4.0)."
9. WCAP-8745-P-A, "DESIGN BASES FOR THE THERMAL OVERPOWER DT AND THERMAL OVERTEMPERATURE DT TRIP FUNCTIONS."
10. WCAP-10965-P-A, "ANC: A WESTINGHOUSE ADVANCED NODAL COMPUTER CODE."
11. WCAP-10965-P-A Addendum 2-A, "Qualification of the New Pin Power Recovery Methodolgy."
12. WCAP-13524-P-A, "APOLLO: A ONE DIMENSIONAL NEUTRON DIFFUSION THEORY PROGRAM."
13. WCAP-14565-P-A Addendum 2-P-A, "Extended Application of ABB-NV Correlation and Modified ABB-NV Correlation WLOP for PWR Low Pressure Applications."
14. WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON."

(continued)

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

15. WCAP-16045-P-A Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology."
16. EMF-2103(P)(A), "Realistic Large Break LOCA Methodology for Pressurized Water Reactors." [Methodology for Specification 3.2.1, FQ]
17. EMF-2328(P)(A), "PWR Small Break LOCA Evaluation Model, S-RELAP5 Based." [Methodology for Specification 3.2.1, FQ]
18. EMF-2310(P)(A), "SRP Chapter 15 Non-LOCA Methodology for Pressurized Water Reactors."
19. XN-NF-82-21(P)(A), "Application of Exxon Nuclear Company PWR Thermal Margin Methodology to Mixed Core Configurations."
20. EMF-92-081(P)(A), "Statistical Setpoint/Transient Methodology for Westinghouse Type Reactors."
21. ANP-10341(P)(A), "The ORFEO-GAIA and ORFEO-NMGRID Critical Heat Flux Correlations."
22. XN-75-21(P)(A), "XCOBRA-IIIC: A Computer Code to Determine the Distribution of Coolant During Steady State and Transient Core Operation."
23. ANP-10311P-A, "COBRA-FLX: A Core Thermal-Hydraulic Analysis Code."
24. XN-NF-82-06(P)(A) Supplement 2, 4, and 5, "Qualification of Exxon Nuclear Fuel for Extended Burnup."
25. XN-75-32(P)(A) Supplements 1, 2, 3, and 4, "Computational Procedure for Evaluating Fuel Rod Bowing."
26. **Insert Reference to Callaway SER for fuel transition LAR.**
27. ANP-10297P-A, "The ARCADIA Reactor Analysis System for PWRs Methodology Description and Benchmarking Results."
28. ANP-10297P-A, Supplement 1PA, "The ARCADIA Reactor Analysis System for PWRs Methodology Description and Benchmarking Results."

(continued)

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

29. ANP-10338P-A, "AREA – ARCADIA Rod Ejection Accident."
 30. ANP-10323P-A, "GALILEO Fuel Rod Thermal-Mechanical Methodology for Pressurized Water Reactors."
 31. BAW-10231P-A, "COPERNIC Fuel Rod Design Computer Code."
- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

- a. RCS pressure and temperature limits for heat up, cooldown, low temperature operation, criticality, hydrostatic testing and PORV lift setting as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:
1. **Specification 3.4.3**, "RCS Pressure and Temperature (P/T) Limits," and
 2. **Specification 3.4.12**, "Cold Overpressure Mitigation System (COMS)."
- b. The analytical methods used to determine the RCS pressure and temperature and COMS PORV limits shall be those previously reviewed and approved by the NRC, specifically those described in WCAP-14040-NP-A, "Methodology Used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves".
- c. The PTLR shall be provided to the NRC upon issuance for each reactor vessel fluence period and for any revision or supplement thereto.

5.6.7 Not used.

(continued)