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March 28, 2003

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

LaSalle County Station, Unit 2
Facility Operating License No. NPF-18
NRC Docket No. 50-374

Subject: Unit 2 Cycle 10 Core Operating Limits Report (COLR)

The purpose of this letter is to advise you of Exelon Generation Company, LLC, review and approval of the LaSalle County Station Unit 2 Cycle 10 reload under the provisions of 10 CFR 50.59, "Changes, tests and experiments," and to transmit the Core Operating Limits Report (COLR) for Cycle 10. This report is being submitted consistent with Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits From Technical Specifications" and in accordance with LaSalle County Station Technical Specification 5.6.5.d.

The reload licensing analyses performed for Cycle 10 utilized NRC approved methodologies. The Unit 2 Cycle 10 core, which consists of NRC approved fuel designs developed by Framatome (formerly Siemens Power Corporation), was designed to operate within approved fuel design criteria provided in the Technical Specifications and related bases. The core operating characteristics are bounded by Updated Final Safety Analysis Report allowable limits.

LaSalle County Station has performed a detailed review of the relevant reload licensing documents and the associated bases and references. Based on that review, the COLR was subjected to the 10 CFR 50.59 review process. The review process concluded that the reload does not require prior NRC review and approval.

Should you have any questions concerning this submittal, please contact Mr. Glen Kaegi, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

Susan R. Landahl for

George P. Barnes
Site Vice President
LaSalle County Station

Attachment

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - LaSalle County Station

A001
IE47

Section 1

Core Operating Limits Report

for

LaSalle Unit 2 Cycle 10

Issuance of Changes Summary

Affected Section	Affected Pages	Summary of Changes	Revision	Date
All	All	Original Issue (Cycle 10)	0	2/2003

Technical Requirements Manual – Appendix J
L2C10 Core Operating Limits Report

Table of Contents

References

1. Exelon Generation Company, LLC, Docket No. 50-374 LaSalle County Station, Unit 2, Facility Operating License, License No. NPF-18.

2. Letter from D. M. Crutchfield to All Power Reactor Licensees and Applicants, Generic Letter 88-16; Concerning the Removal of Cycle-Specific Parameter Limits from Tech Specs, October 3, 1988.

3 EMF-2830 Revision 0, "LaSalle Unit 2 Cycle 10 Reload Analysis," Framatome ANP, Inc , January 2003.

4. Letter from A. Giancatarino to J. Nugent, "LaSalle Unit 1 and Unit 2 Rod Block Monitor COLR Setpoint Change," NFM.MW:01-0106, April 3, 2001.

5. Letter from D. Garber to R. Chin, "POWERPLEX-II CMSS Startup Testing", DEG:00.254, December 5, 2000.

6. Letter from D. Garber to R. Chin "POWERPLEX-II CMSS Startup Testing", DEG:00:256, December 6, 2000.

7. Letter from J.H. Riddle to R. Chin "TIP Symmetry Testing", JHR:97:021, January 20, 1997 and letter from D.Garber to R. Chin "TIP Symmetry Testing", DEG:99.085, March 23, 1999.

8. EMF-2700 Revision 0, "LaSalle Unit 2 Cycle 10 Principal Transient Analysis Parameters," June 2002.

9. "Transient Analysis Evaluation for LaSalle 3 TCV Operation at Power Uprate and MELLLA Conditions," NFM:BSA·00-025, R.W. Tsai to D. Bost, April 13, 2000.

10 Letter from A W. Will to F. W. Trikur, "Operation at LaSalle Units 1 and 2 with One MSIV Out of Service", AWW:03 005, January 15, 2003.

11. "LaSalle Units 1 and 2 Operation with One TSV OOS – Update Nuclear Fuels Memo NF-MW.02-0431," NF-MW.03-007, Carlos de la Hoz to Kirk Peterman, January 9, 2003.

12. LaSalle County Station Power Uprate Project, Task 201: Reactor Power/Flow Map, GE-NE-A1300384-07-01, Revision 1, September 1999.

13. "Operation with a Pressure Regulator Out of Service at LaSalle," NF-MW:03-0063, Carlos de la Hoz to Kirk Peterman, February 7, 2003.

1. Average Planar Linear Heat Generation Rate (3.2.1)

1.1 Technical Specification Reference:

Section 3.2 1.

1.2 Description:

Tables 1-1 and 1-2 are used to determine the maximum average planar linear heat generation rate (MAPLHGR) limit for each fuel type. Limits given in Tables 1-1 and 1-2 are for Dual Reactor Recirculation Loop Operation.

For Single Reactor Recirculation Loop Operation (SLO), the MAPLHGR limits given in Tables 1-1 and 1-2 must be multiplied by a SLO MAPLHGR multiplier. The SLO MAPLHGR multiplier for ATRIUM-10 and ATRIUM-9B fuel is 0.90 (Reference 3 Page 7-1).

Table 1-1
Maximum Average Planar Linear Heat Generation Rate
(MAPLHGR) for ATRIUM-10 Fuel
A10-4025B-15GV80-100M
A10-3982B-15GV80-100M
A10-1786B-0GV-100M
(Bundle types 20, 21 and 22)
(Reference 3 Section 7 2.1)

Average Planar Exposure (GWd/MT)	MAPLHGR (kW/ft)
0.0	12.5
15 0	12.5
55 0	9.1
64.0	7.6

Table 1-2
Maximum Average Planar Linear Heat Generation Rate
(MAPLHGR) for ATRIUM-9B Fuel
A9-381B-13GZ7-80M
A9-384B-11GZ6-80M
A9-391B-14G8.0-100M
A9-410B-19G8.0-100M
A9-383B-16G8.0-100M
A9-396B-12GZ-100M
(Bundle types 14, 15, 16, 17, 18 and 19)
(Reference 3 Section 7.2 1)

Planar Average Exposure (GWd/MT)	MAPLHGR (kW/ft)
0.0	13.5
20.0	13 5
64.3	9.07

2. Minimum Critical Power Ratio (3.2.2)

2.1 Technical Specification Reference

Section 3.2.2.

2.2 Description:

Limits provided in this section are only valid up to the first sequence exchange (deep-shallow swap) for the cycle, due to potential Control Blade History (CBH) impacts which were not determined as part of the original Cycle 10 licensing analyses. A revision to this document to account for any potential CBH impact will be issued at a future date, prior to the first sequence exchange for Cycle 10.

TIP Symmetry Chi-squared testing shall be performed prior to reaching a cycle exposure of 500 MWd/MT to validate the MCPR calculation.

2.2.1 Manual Flow Control MCPR Limits

The Operating Limit MCPR (OLMCPR) is determined from either section 2.2.1.1 or 2 2.1.2, whichever is greater at any given power and flow condition.

2 2.1.1 Power-Dependent MCPR

The power-dependent MCPR value, $MCPR_P$, is determined from Tables 2-1 through 2-4, and is dependent on fuel type and scram speed, in addition to power level Table 2-1 or 2-2 is applicable to ATRIUM-10 fuel and Table 2-3 or 2-4 is applicable to ATRIUM-9B fuel

2.2.1.2 Flow-Dependent MCPR

The flow dependent MCPR value, $MCPR_F$, is determined from Table 2-5 for all fuel types.

2.2.2 Automatic Flow Control MCPR Limits

Automatic Flow Control is not allowed because MCPR Limits are not provided.

2.2.3 Nominal Scram Speeds

To utilize the MCPR limits for Nominal Scram Speeds (NSS), the core average scram speed insertion time must be equal to or less than the following values (Reference 8 Section 7.7).

Notch Position	Time (sec)
45	0.380
39	0.680
25	1.680
05	2.680

Table 2-1
$MCPR_P$ for ATRIUM-10 Fuel
BOC – First Cycle-10 Sequence Exchange
Nominal Scram Speeds (NSS)
(Reference 3 Table 5.1)

EOOS Combination	Core Thermal Power (% of rated)				
	0	25	25(25.01)	60	100
	$MCPR_P$				
Base Case Operation	2.70	2.20	1.98	1.45	1.40
Single Loop Operation (SLO)	2.71	2.21	1.99	1.46	1.41

- Values are interpolated between relevant power levels.
- For thermal limit monitoring at greater than 100% core thermal power, the 100% core thermal power $MCPR_P$ should be applied.
- Allowable EOOS conditions are listed in Section 6.

Table 2-2
MCPR$_P$ for ATRIUM-10 Fuel
BOC – First Cycle-10 Sequence Exchange
Technical Specification Scram Speeds (TSSS)

(Reference 3 Table 5 2)

EOOS Combination	Core Thermal Power (% of rated)						
	0	25	25(25.01)	60	80	80(80.01)	100
	MCPR$_P$						
Base Case Operation	2.70	2 20	2 05	1 48			1 40
FHOOS Only	2.92	2 42	2 42	1 60			1 40
EOOS Case 1	2 92	2 42	2.42	1 60			1 42
EOOS Case 2	2 92	2 42	2.42		1.72	1 52	1 48
Single Loop Operation (SLO)	2 71	2.21	2 06	1 49			1 41
SLO with FHOOS Only	2 93	2 43	2 43	1 61			1.41
SLO with EOOS Case 1	2 93	2 43	2 43	1 61			1 43
SLO with EOOS Case 2	2.93	2.43	2 43		1.73	1 53	1 49

- Values are interpolated between relevant power levels.
- For thermal limit monitoring at greater than 100% core thermal power, the 100% core thermal power MCPR$_P$ should be applied.
- Allowable EOOS conditions are listed in Section 6.

Table 2-3
MCPR$_P$ for ATRIUM-9B Fuel
BOC – First Cycle-10 Sequence Exchange
Nominal Scram Speeds (NSS)

(Reference 3 Table 5 1)

EOOS Combination	Core Thermal Power (% of rated)				
	0	25	25(25.01)	60	100
	MCPR$_P$				
Base Case Operation	2 70	2 20	1 91	1 45	1 40
Single Loop Operation (SLO)	2.71	2 21	1.92	1.46	1 41

- Values are interpolated between relevant power levels.
- For thermal limit monitoring at greater than 100% core thermal power, the 100% core thermal power MCPR$_P$ should be applied.
- Allowable EOOS conditions are listed in Section 6.

Table 2-4
MCPR$_P$ for ATRIUM-9B Fuel
BOC – First Cycle-10 Sequence Exchange
Technical Specification Scram Speeds (TSSS)
(Reference 3 Table 5 2)

EOOS Combination	Core Thermal Power (% of rated)						
	0	25	25(25.01)	60	80	80(80.01)	100
	MCPR$_P$						
Base Case Operation	2 70	2 20	1 97	1 49			1 40
FHOOS Only	2 79	2 29	2 29	1 56			1.40
EOOS Case 1	2 79	2 29	2 29	1 58			1 41
EOOS Case 2	2.79	2 29	2 29		1.75	1.57	1 50
Single Loop Operation (SLO)	2.71	2 21	1.98	1 50			1 41
SLO with FHOOS Only	2.80	2 30	2 30	1 57			1 41
SLO with EOOS Case 1	2.80	2.30	2 30	1 59			1 42
SLO with EOOS Case 2	2.80	2.30	2 30		1.76	1.58	1.51

- Values are interpolated between relevant power levels.
- For thermal limit monitoring at greater than 100% core thermal power, the 100% core thermal power MCPR$_P$ should be applied.
- Allowable EOOS conditions are listed in Section 6.

Table 2-5
$MCPR_F$ limits for All Fuel
(Reference 3 Figure 5 1)

Flow (% of rated)	$MCPR_F$
105	1.11
100	1.19
30	1.63
0	1.63

- Values are interpolated between relevant flow values.
- Values are applicable to all Operating Domains and EOOS conditions in Section 6.
- For thermal limit monitoring at greater than 105% rated core flow, utilize the $MCPR_F$ limit for 105% rated core flow.

3. Linear Heat Generation Rate (3.2.3)

3.1 Technical Specification Reference

Section 3.2.3.

3.2 Description:

Limits provided in this section are only valid up to the first sequence exchange (deep-shallow swap) for the cycle, due to potential Control Blade History (CBH) impacts which were not performed as part of the original Cycle 10 licensing analyses A revision to this document to account for any potential CBH impact will be issued at a future date, prior to the first sequence exchange for Cycle 10.

The LHGR Limit is the product of the LHGR Limit from Tables 3-1 or 3-2 and the minimum of either the power dependent LHGR Factor, $LHGRFAC_P$, or the flow dependent LHGR Factor, $LHGRFAC_F$. The applicable power dependent LHGR Factor ($LHGRFAC_P$) is determined from Table 3-3 or 3-4 for ATRIUM-10 fuel or Table 3-5 or 3-6 for ATRIUM-9B fuel. The applicable flow dependent LHGR Factor ($LHGRFAC_F$) is determined from Table 3-7 for all fuel types.

Table 3-1
Steady-State LHGR Limits for ATRIUM-10 Fuel
A10-4025B-15GV80-100M
A10-3982B-15GV80-100M
A10-1786B-0GV-100M
(Bundle types 20, 21 and 22)
(Reference 3 Section 7.2 3)

Average Planar Exposure (GWd/MT)	LHGR Limit (kW/ft)
0.0	13.4
15.0	13 4
55.0	9.1
64.0	7.3

Table 3-2
Steady-State LHGR Limits for ATRIUM-9B Fuel
A9-381B-13GZ7-80M
A9-384B-11GZ6-80M
A9-391B-14G8.0-100M
A9-410B-19G8.0-100M
A9-383B-16G8.0-100M
A9-396B-12GZ-100M
(Bundle types 14, 15, 16, 17, 18 and 19)
(Reference 3 Section 7.2 3)

Average Planar Exposure (GWd/MT)	LHGR Limit (kW/ft)
0.0	14.4
15.0	14.4
64.3	7.9

Table 3-3
$LHGRFAC_P$ for ATRIUM-10 Fuel
BOC – First Cycle-10 Sequence Exchange
Nominal Scram Speeds (NSS)

(Reference 3 Table 5 1)

EOOS Combination	Core Thermal Power (% of rated)			
	0	25	60	100
	$LHGRFAC_P$ multiplier			
Base Case Operation	0 79	0 79	1.00	1.00
Single Loop Operation (SLO)	0 79	0 79	1.00	1 00

- Values are interpolated between relevant power levels.
- For thermal limit monitoring at greater than 100% core thermal power, the 100% core thermal power $LHGRFAC_P$ multiplier should be applied.
- Allowable EOOS conditions are listed in Section 6.

Table 3-4
LHGRFAC$_P$ for ATRIUM-10 Fuel
BOC – First Cycle-10 Sequence Exchange
Technical Specification Scram Speeds (TSSS)
(Reference 3 Table 5 2)

EOOS Combination	Core Thermal Power (% of rated)					
	0	25	60	80	80 (80.01)	100
	LHGRFAC$_P$ multiplier					
Base Case Operation	0 78	0 78	1 00			1 00
FHOOS Only	0 65	0 65	0 95			1.00
EOOS Case 1	0 65	0 65	0.95			1 00
EOOS Case 2	0 65	0 65		0 91	0 93	0 95
Single Loop Operation (SLO)	0 78	0 78	1.00			1.00
SLO with FHOOS Only	0 65	0 65	0 95			1.00
SLO with EOOS Case 1	0 65	0.65	0 95			1.00
SLO with EOOS Case 2	0 65	0.65		0 91	0.93	0.95

- Values are interpolated between relevant power levels.
- For thermal limit monitoring at greater than 100% core thermal power, the 100% core thermal power LHGRFAC$_P$ multiplier should be applied.
- Allowable EOOS conditions are listed in Section 6

Table 3-5
$LHGRFAC_P$ for ATRIUM-9B Fuel
BOC – First Cycle-10 Sequence Exchange
Nominal Scram Speeds (NSS)

(Reference 3 Table 5.1)

EOOS Combination	Core Thermal Power (% of rated)			
	0	25	60	100
	$LHGRFAC_P$ multiplier			
Base Case Operation	0.79	0.79	1.00	1.00
Single Loop Operation (SLO)	0.79	0.79	1.00	1.00

- Values are interpolated between relevant power levels.
- For thermal limit monitoring at greater than 100% core thermal power, the 100% core thermal power $LHGRFAC_P$ multiplier should be applied.
- Allowable EOOS conditions are listed in Section 6.

Table 3-6
LHGRFAC$_P$ for ATRIUM-9B Fuel
BOC – First Cycle-10 Sequence Exchange
Technical Specification Scram Speeds (TSSS)

(Reference 3 Table 5 2)

EOOS Combination	Core Thermal Power (% of rated)					
	0	25	60	80	80 (80.01)	100
	LHGRFAC$_P$ multiplier					
Base Case Operation	0 78	0 78	1 00			1.00
FHOOS Only	0 67	0 67	0 93			1.00
EOOS Case 1	0 67	0 67	0.93			1.00
EOOS Case 2	0 67	0 67		0.79	0 86	0 90
Single Loop Operation (SLO)	0 78	0 78	1.00			1.00
SLO with FHOOS Only	0 67	0 67	0 93			1.00
SLO with EOOS Case 1	0 67	0 67	0 93			1.00
SLO with EOOS Case 2	0 67	0 67		0 79	0 86	0 90

- Values are interpolated between relevant power levels.
- For thermal limit monitoring at greater than 100% core thermal power, the 100% core thermal power LHGRFAC$_P$ multiplier should be applied
- Allowable EOOS conditions are listed in Section 6.

Table 3-7
$LHGRFAC_F$ multipliers for All Fuel
(Reference 3 Figure 5 2)

Flow (% of rated)	$LHGRFAC_F$ Multiplier
105	1.00
60	1.00
30	0.85
0	0.85

- Values are interpolated between relevant flow values.
- For thermal limit monitoring above 105% rated core flow, utilize the 105% rated core flow $LHGRFAC_F$ multiplier.
- Values are applicable to all Operating Domains and EOOS conditions in Section 6.

4. Control Rod Withdrawal Block Instrumentation (3.3.2.1)

4.1 Technical Specification Reference:

Table 3.3.2.1-1

4.2 Description:

The Rod Block Monitor Upscale Instrumentation Setpoints are determined from the relationships shown below (Reference 4):

ROD BLOCK MONITOR UPSCALE TRIP FUNCTION	ALLOWABLE VALUE
Two Recirculation Loop Operation	$0.66\ W_d + 54\%$
Single Recirculation Loop Operation	$0.66\ W_d + 48.7\%$

The setpoint may be lower/higher and will still comply with the Rod Withdrawal Error (RWE) Analysis because RWE is analyzed unblocked. The allowable value is clamped, with a maximum value not to exceed the allowable value for a recirculation loop flow (W_d) of 100%.

W_d – percent of recirculation loop flow required to produce a rated core flow of 108.5 Mlb/hr.

5. Traversing In-Core Probe System (3.2.1, 3.2.2, 3.2.3)

5 1 Technical Specification Reference:

Technical Specification Sections 3.2.1, 3.2.2, 3.2.3 for thermal limits require the TIP system for recalibration of the LPRM detectors and monitoring thermal limits.

5.2 Description:

When the traversing in-core probe (TIP) system (for the required measurement locations) is used for recalibration of the LPRM detectors and monitoring thermal limits, the TIP system shall be operable with the following·

1. movable detectors, drives and readout equipment to map the core in the required measurement locations, and

2. indexing equipment to allow all required detectors to be calibrated in a common location.

The following applies for use of the SUBTIP methodology.

With one or more TIP measurement locations inoperable, the TIP data for an inoperable measurement location may be replaced by data obtained from a 3-dimensional BWR core monitoring software system adjusted using the previously calculated uncertainties, provided the following conditions are met.

1. All TIP traces have previously been obtained at least once in the current operating cycle when the reactor core was operating above 20% power, (References 5, 6 and 7) and

2. The total number of simulated channels (measurement locations) does not exceed 42% (18 channels).

Otherwise, with the TIP system inoperable, suspend use of the system for the above applicable monitoring or calibration functions.

5 3 Bases:

The operability of the TIP system with the above specified minimum complement of equipment ensures that the measurements obtained from use of this equipment accurately represent the spatial neutron flux distribution of the reactor core. The normalization of the required detectors is performed internal to the core monitoring software system

Substitute TIP data, if needed, is 3-dimensional BWR core monitoring software calculated data which is adjusted based on axial and radial factors calculated from previous TIP sets. Since the simulation and adjustment process could introduce uncertainty, a maximum of 18 channels may be simulated to ensure that the uncertainties assumed in the substitution process methodology remain valid.

6. Allowed Modes of Operation (B 3.2.2, B 3.2.3)

The Allowed Modes of Operation with combinations of Equipment Out-of-Service are as described below:

Equipment Out of Service Options[1,4,10,11]	---------OPERATING REGION--------- ELLLA	MELLLA	ICF[7]	Coastdown[3]	POWERPLEX Thermal Limit Set Number[4,2]
Base Case Operation – NSS	Yes	Yes	Yes	No	1
Single Loop Operation (SLO) – NSS	Yes	No[6]	N/A	No	2
Base Case Operation – TSSS	Yes	Yes	Yes	No	3
FHOOS[5] Only - TSSS	No[8]	No[8]	Yes	No	4
EOOS Case 1 – TSSS FHOOS[5] or TBVOOS[9]	Yes Except FHOOS[8]	Yes Except FHOOS[8]	Yes	No	5
EOOS Case 2 – TSSS Any combination of TCV slow closure[9,12], no RPT or FHOOS[5]	Yes Except FHOOS[8]	Yes Except FHOOS[8]	Yes	No	6
Single Loop Operation (SLO) – TSSS	Yes	No[6]	N/A	No	7
SLO FHOOS[5] Only - TSSS	No[8]	No[6,8]	N/A	No	8
SLO with EOOS Case 1 – TSSS FHOOS[5] or TBVOOS[9]	Yes Except FHOOS[8]	No[6]	N/A	No	9
SLO with EOOS Case 2 – TSSS Any combination of TCV slow closure[9,12], no RPT or FHOOS[5]	Yes Except FHOOS[8]	No[6]	N/A	No	10
One TCV Stuck Closed[9]	Yes	Yes	Yes	No	See Note 9
One TSVOOS[11]	Yes	Yes	Yes	No	See Note 11

[1] Each OOS Option may be combined with 1 SRVOOS, up to a 20°F reduction in feedwater temperature (without feedwater heaters considered OOS), up to 2 TIP machines OOS (or the equivalent number of TIP channels, i.e , 42% of the total number of channels) with 100% available at startup, and/or up to 50% of the LPRMs OOS with an LPRM calibration frequency of 1250 Effective Full Power Hours (EFPH) (1000 EFPH +25%) (Reference 3 Tables 1.1 and 5.1 through 5.2)

[2] In general, a more conservative thermal limit set that bounds the operating conditions can be used for thermal limit monitoring. However, using a more conservative thermal limit set will impose additional operating restrictions that are not required

[3] Coastdown limits are not provided.

[4] All EOOS scenarios and all limits provided are applicable from the beginning of the cycle (BOC) until the first Cycle-10 sequence exchange only. Applicable limits for operation beyond the first Cycle-10 sequence exchange will be transmitted in a later revision to this document.

[5] Feedwater heaters OOS (FHOOS) supports a reduction of up to 100°F in feedwater temperature. FHOOS may be an intentionally entered mode of operation or an actual OOS condition.

[6] The SLO boundary was not moved up with the incorporation of MELLLA. (MELLLA FCL is ~ 114.8%.) The power-flow boundary for SLO at power uprated conditions remains the ELLLA boundary for pre-uprate conditions (Reference 12). (ELLLA FCL is ~ 104.3%.)

[7] ICF is analyzed up to 105% rated core flow.

[8] If operating with FHOOS (alone or in combination with other EOOS), operation in the ELLLA or MELLLA region is supported by current transient analyses, but is administratively limited to less than 100% flow control line due to stability concerns.

[9] Operation prior to coastdown is only allowed when less than 10.5 million lbm/hr steam flow and when average position of 3 open TCVs is less than 50% open, with FCL <103%, and the MCFL setpoint ≥ 120%. TCV Stuck Closed may be in combination with any EOOS except TBVOOS, TCV Slow Closure, or TSVOOS. If in combination with other EOOS(s), thermal limits may require adjustment for the other EOOS(s) as designated in Sections 1, 2, and 3 (Reference 9)

[10] A single MSIV may be taken OOS (shut) under any and all OOS options as long as core thermal power is maintained ≤ 75% of 3489 MWt (Reference 10).

[11] A single TSV may be taken OOS (shut) and is bounded by operation with 1 TCV stuck closed. Therefore, operation with 1 TSVOOS is subject to the restrictions given for 1 TCV stuck closed in Note 9. The combination of 1 TSVOOS and 1 TCV stuck closed is not allowed. (Reference 11)

[12] For temporary operation with a pressure regulator out of service (PROOS), the TCV slow closure limits should be applied (Reference 13). The combination of PROOS and TCV slow closure is not allowed

7. Methodology (5.6.5)

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. XN-NF-81-58 (P)(A), Revision 2 and Supplements 1 and 2, "RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model," March 1984.

2. Letter from Ashok C. Thadini (NRC) to R.A. Copeland (SPC), "Acceptance for Referencing of ULTRAFLOW™ Spacer on 9x9-IX/X BWR Fuel Design," July 28, 1993

3 ANF-524 (P)(A) Revision 2 and Supplements 1 and 2, "ANF Critical Power Methodology for Boiling Water Reactors," November 1990

4. XN-NF-80-19 (P)(A) Volume 1 Supplement 3, Supplement 3 Appendix F, and Supplement 4, "Advanced Nuclear Fuels Methodology for Boiling Water Reactors: Benchmark Results for CASMO-3G/MICROBURN-B Calculation Methodology," November 1990.

5 XN-NF-85-67 (P)(A) Revision 1, "Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel," September 1986.

6. ANF-913 (P)(A) Volume 1 Revision 1, and Volume 1 Supplements 2, 3, 4, "COTRANSA2. A Computer Program for Boiling Water Reactor Transient Analyses," August 1990.

7. XN-NF-84-105 (P)(A), Volume 1 and Volume 1 Supplements 1 and 2; Volume 1 Supplement 4, "XCOBRA-T: A Computer Code for BWR Transient Thermal-Hydraulic Core Analysis," February 1987 and June 1988, respectively.

8 ANF-89-014 (P)(A) Revision 1 and Supplements 1 & 2, "Generic Mechanical Design for Advanced Nuclear Fuels Corporation 9X9 – IX and 9x9 – 9X BWR Reload Fuel," October 1991.

9. EMF-2209 (P)(A), Revision 1, "SPCB Critical Power Correlation," July 2000.

10. ANF-89-98 (P)(A), Revision 1 and Revision 1 Supplement 1, "Generic Mechanical Design Criteria for BWR Fuel Designs," May 1995.

11. ANF-91-048 (P)(A), "Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors EXEM BWR ECCS Evaluation Model," January 1993.

12. Commonwealth Edison Company Topical Report NFSR-0091, "Benchmark of CASMO/MICROBURN BWR Nuclear Design Methods," Revision 0 and Supplements on Neutronics Licensing Analysis (Supplement 1) and La Salle County Unit 2 benchmarking (Supplement 2), December 1991, March 1992, and May 1992, respectively.

13 EMF-85-74 (P)(A) Revision 0 and Supplement 1(P)(A) and Supplement 2(P)(A), "RODEX2A (BWR) Fuel Rod Thermal-Mechanical Evaluation Model," February 1998.

14. EMF-CC-074 (P) Volume 4 Revision 0, "BWR Stability Analysis: Assessment of STAIF with Input from MICROBURN-B2, August 2000.

15. ANF-1125 (P)(A) and ANF-1125(P)(A) Supplements 1 and 2, "ANFB Critical Power Correlation," Advanced Nuclear Fuels Corporation, April 1990.

16 ANF-1125 (P)(A) Supplement 1 Appendix E, "ANFB Critical Power Correlation Determination of ATRIUM™-9B Additive Constant Uncertainties," September 1998.

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