Constellation.

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RA22-041 10 CFR 50.4

October 5, 2022

U.S. Nuclear Regulatory Commission
Attention: NRC Region III Administrator
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4352

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

Subject: Unit 2 Cycle 19 Core Operating Limits Report Revision

In accordance with LaSalle County Station (LSCS Technical Specifications (TS) 5.6.5.d, "CORE OPERATING LIMITS REPORT (COLR)," attached is a copy of the Unit 2 revision 19.

There are no regulatory commitments contained within this letter.

Should you have any questions concerning this letter, please contact Mr. Dan Mearhoff, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

Phil W. Hansett
Site Vice President
LaSalle County Station

Enclosure: LaSalle Unit 2 COLR revision 19

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

Core Operating Limits Report
For
LaSalle Unit 2 Cycle 19

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Revision History

Record of COLR LaSalle 2 Cycle 19 Revisions

Revision	Description
19	Revised to include thermal limits for Base Case + TCVSC + RPTOOS with and without TCVIS.
18	Initial issuance for L2C19.

List of Tables

1. Terms and Definitions

ARO	All rods out
ARTS	Average power range monitor, rod block monitor and technical specification improvement program
BOC	Beginning of cycle
CRD	Control rod drive
DLO	Dual loop operation
EOC	End of cycle
EOOS	Equipment out of service
EOR	End of rated - Cycle exposure corresponding to all rods out, 100% power/100% flow, and normal feedwater temperature
FFWTR	Final feedwater temperature reduction
FWHOOS	Feedwater heater out of service
GNF	Global Nuclear Fuels - Americas
ICF	Increased core flow
K_P	Power-dependent MCPR multiplier
LHGR	Linear heat generation rate
$LHGRFAC_F$	Flow-dependent LHGR multiplier
$LHGRFAC_P$	Power-dependent LHGR multiplier
LOCA	Loss of coolant accident
LPRM	Local power range monitor
L2C19	LaSalle Unit 2 Cycle 19
MAPLHGR	Maximum average planar linear heat generation rate
MCPR	Minimum critical power ratio
$MCPR_{99.9\%}$	Limiting MCPR value such that 99.9% of the fuel in the core is not susceptible to boiling transition
$MCPR_F$	Flow-dependent MCPR
MELLLA	Maximum extended load line limit analysis
MOC	Middle of cycle point for licensing purposes
MSIVOOS	Main steam isolation valve out of service
MSR	Moisture separator reheater
MSROOS	Moisture separator reheater out of service
OLMCPR	Operating limit minimum critical power ratio
OOS	Out of service
OPRM	Oscillation power range monitor
PBDA	Period based detection algorithm
PLUOOS	Power load unbalance out of service
PROOS	Pressure regulator out of service
RPTOOS	Recirculation pump trip out of service
RWE	Rod withdrawal error
SLMCPR	Safety limit minimum critical power ratio
SLO	Single loop operation
SRVOOS	Safety/relief valve out of service
TBV	Turbine bypass valve
TBVOOS	Turbine bypass valve out of service
TCV	Turbine control valve
TCVIS	All turbine control valves/turbine stop valves in-service
TCVSC	Turbine control valve slow closure
TIP	Traversing in-core probe
TSV	Turbine stop valve
3DM	3D Monicore

2. General Information

The data provided in this report is valid for (Reference 7):

- Maximum Extended Load Line Limit down to 82.8% of rated core flow during full power operation (rated core flow is 108.5 Mlb/hr) (Reference 6).
- ICF to 105% of rated core flow.
- Coastdown to 40% rated power (rated core thermal power is 3546 MWth) (Reference 6).
    - Operation at a power level above that which can be achieved with ARO, ICF, FFWTR, and steady-state equilibrium Xenon concentrations is not supported.
- Maximum reduction of 100°F of the feedwater temperature for FWHOOS/FFWTR.

Throughout this report, power and flow dependent limits are listed for various power and flow levels. Linear interpolation is to be used to find intermediate values.

Table 2-1 defines the three exposure ranges used in the COLR. The term (EOR19 – 4260 MWd/ST) means the Cycle 19 EOR exposure minus 4260 MWd/ST of exposure. The value of the EOR exposure is based on actual plant operation and is thus determined from projections to this condition made near, but before, the time when the EOR19 – 4260 MWd/ST exposure will be reached. For cycle exposure dependent limits at the exact MOC exposure, the more limiting of the BOC to MOC and the MOC to EOC limits should be used. This can be achieved by applying the MOC to EOC limits to the MOC point as all cycle exposure dependent limits in the MOC to EOC limit sets are the same as, or more limiting than, those in the BOC to MOC limit sets.

Table 2-1 Cycle Exposure Range Definitions
(Reference 7)

Nomenclature	Cycle Exposure Range
BOC to MOC	BOC19 to (EOR19 – 4260 MWd/ST)
MOC to EOC	(EOR19 – 4260 MWd/ST) to EOC19
BOC to EOC	BOC19 to EOC19

3. MAPLHGR

Technical Specification Sections 3.2.1 and 3.4.1

MAPLHGR values as a function of average planar exposure are given in Tables 3-1 and 3-2. During SLO, these limits are multiplied by the SLO multiplier listed in Table 3-3. Tables 3-1, 3-2 and 3-3 provide coverage for all modes of operation.

Table 3-1 MAPLHGR versus Average Planar Exposure for GNF2 Fuel
(Reference 7)

Avg. Planar Exposure (GWd/ST)	MAPLHGR (kW/FT)
0.00	13.78
17.15	13.78
60.78	6.87
63.50	5.50

Table 3-2 MAPLHGR versus Average Planar Exposure for GNF3 Fuel
(Reference 7)

Avg. Planar Exposure (GWd/ST)	MAPLHGR (kW/FT)
0.00	14.36
21.22	13.01
40.82	10.75
57.60	8.00
63.50	6.00

Table 3-3 MAPLHGR SLO Multiplier for GNF2 and GNF3 Fuel
(Reference 7)

Fuel Type	SLO MAPLHGR Multiplier
GNF2	0.78
GNF3	0.90

4. MCPR

Technical Specification Sections 3.2.2, 3.3.4.1, 3.4.1, and 3.7.7

4.1. MCPR Limits

The rated OLMCPRs given in Table 4-2 are the maximum values obtained from analysis of the pressurization events, non-pressurization events, and the Option III stability evaluation. MCPR values are determined by the cycle-specific fuel reload analyses in References 7 and 16. Table 4-2 is used in conjunction with the ARTS-based power (Kp) and flow ($MCPR_F$) dependencies presented in Tables 4-3, 4-4, 4-5, 4-6, and 4-7 below. The OLMCPR is determined for a given power and flow condition by evaluating the power and flow dependent MCPR values and selecting the greater of the two.

4.1.1. Power-Dependent MCPR

The power-dependent MCPR multiplier, K_P, is determined from Table 4-3, and is dependent only on the power level and the Application Group (EOOS). The product of the rated OLMCPR and the proper K_P provides the power-dependent OLMCPR.

4.1.2. Flow-Dependent MCPR

Tables 4-4 through 4-7 give the $MCPR_F$ limit as a function of the core flow, based on the applicable plant conditions. The $MCPR_F$ limit determined from these tables is the flow-dependent OLMCPR.

4.1.3. Safety Limit MCPR

The cycle-specific SLMCPR, known as $MCPR_{99.9\%}$, can be found in Table 4-8 for dual loop and single loop operating conditions. The values in Table 4-8 were used to calculate the rated and off-rated MCPR limits.

4.2. Scram Time

Option A and Option B MCPR analyses and results are dependent upon core average control rod blade scram speed insertion times.

The Option A scram time is the Improved Technical Specification scram speed based insertion time. To utilize the MCPR limits for the Option A scram speed insertion times, the core average scram speed insertion time for 20% insertion must be less than or equal to 0.900 seconds (Reference 10) (0.875 seconds at notch position 39, Reference 11).

To utilize the MCPR limits for the Option B scram speed insertion times, the core average scram speed time for insertion to notch 39 must be less than or equal to τ_B (Reference 14, see equation 1).

$$\tau_B = \mu + 1.65\sqrt{\left(\frac{N_1}{\sum_{i=1}^{n} N_i}\right)}\sigma \quad \text{or} \quad \tau_B = 0.603 + 1.65\sqrt{\left(\frac{N_1}{\sum_{i=1}^{n} N_i}\right)}0.0106 \qquad (1)$$

Where μ (0.603 for LaSalle) is the mean of means plus two standard deviations scram insertion time to notch position 39 dropout and σ (0.0106 for LaSalle) is the standard deviation of the distribution for average scram insertion time to notch position 39 dropout used in the Option B scram speed statistical analysis, and where n is the number of surveillance tests performed in the cycle, N_i is the number of active control rods measured in surveillance test i, and N_1 is the total number of active rods measured.

Alternatively, to use Option B, omitting the right-hand side of the τ_B equation would be conservative, and is acceptable. See Table 4-1 for a summary of scram time requirements related to the use of Option A and Option B MCPR limits.

If the core average scram insertion time does not meet the Option B criteria, but is within the Option A criteria, the appropriate steady state MCPR value may be determined from a linear interpolation between the Option A and B limits with standard mathematical rounding to two decimal places.

Table 4-1 Scram Times Required for Option A and Option B Application at Notch Position 39
(References 11 and 14)

Notch Position*	Scram Time Required for Option A Application (sec)	Scram Time Required for Option B Application (sec)**
39	≤ 0.875	≤ 0.603 *OR* $\leq 0.603 + 1.65\sqrt{\left(\frac{N_1}{\sum_{i=1}^{n} N_i}\right)}0.0106$

* The insertion time to a notch position is conservatively calculated using the CRD reed switch drop-out time per Reference 11 and interpolation with scram time values per Reference 10.
** Reference 14 uses the term Option B'. However, since Option B' is a plant-specific Option B scram speed, demonstrating compliance remains the same as the generic Option B scram speed, and LaSalle will continue to use the term Option B.

4.3. Recirculation Flow Control Valve Settings

Cycle 19 was analyzed with a maximum core flow runout of 105%; therefore, the recirculation pump flow control valves must be set to maintain core flow less than 105% (113.925 Mlbm/hr) for all runout events (References 7 and 16).

Table 4-2 Operating Limit Minimum Critical Power Ratio (OLMCPR) for GNF2 and GNF3 Fuel
(References 7 and 16)

Application Group	DLO/ SLO	Exposure Range/ Fuel Type	Option A	Option B
Base Case	DLO	BOC-EOC (GNF2)	1.39	1.36
		BOC-EOC (GNF3)	1.39	1.36
	SLO	BOC-EOC (GNF2)	1.59	1.59
		BOC-EOC (GNF3)	1.57	1.57
Base Case + TCVSC + RPTOOS + PROOS + MSROOS	DLO	BOC-EOC (GNF2)	1.44	1.38
		BOC-EOC (GNF3)	1.44	1.38
	SLO	BOC-EOC (GNF2)	1.59	1.59
		BOC-EOC (GNF3)	1.57	1.57
Base Case + TCVSC + TBVOOS (all 5 valves)	DLO	BOC-EOC (GNF2)	1.43	1.37
		BOC-EOC (GNF3)	1.43	1.37
	SLO	BOC-EOC (GNF2)	1.59	1.59
		BOC-EOC (GNF3)	1.57	1.57
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS	DLO	BOC-EOC (GNF2)	1.49	1.46
		BOC-EOC (GNF3)	1.49	1.46
	SLO	BOC-EOC (GNF2)	1.59	1.59
		BOC-EOC (GNF3)	1.57	1.57
Base Case with TCVIS	DLO	BOC-EOC (GNF2)	1.39	1.36
		BOC-EOC (GNF3)	1.39	1.36
	SLO	BOC-EOC (GNF2)	1.59	1.59
		BOC-EOC (GNF3)	1.57	1.57
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS with TCVIS	DLO	BOC-EOC (GNF2)	1.49	1.46
		BOC-EOC (GNF3)	1.49	1.46
	SLO	BOC-EOC (GNF2)	1.59	1.59
		BOC-EOC (GNF3)	1.57	1.57
Base Case + TCVSC + RPTOOS	DLO	BOC-EOC (GNF2)	1.44	1.38
		BOC-EOC (GNF3)	1.44	1.38
Base Case + TCVSC + RPTOOS with TCVIS	DLO	BOC-EOC (GNF2)	1.44	1.38
		BOC-EOC (GNF3)	1.44	1.38

Table 4-3 Power-Dependent MCPR Multipliers (K_P) for GNF2 and GNF3 Fuel
(References 7 and 16)

Application Group	Core Thermal Power (% rated)						
	0	25	45	60	≤ 85	>85	100
	K_P, Operating Limit MCPR Multiplier						
Base Case	1.150	1.150	1.150	1.150	1.056	1.056	1.000
Base Case + TCVSC + RPTOOS + PROOS + MSROOS	1.242	1.242	1.207	1.178	1.111	1.064	1.000
Base Case + TCVSC + TBVOOS (all 5 valves)	1.150	1.150	1.150	1.150	1.058	1.058	1.000
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS	1.242	1.242	1.207	1.178	1.111	1.070	1.000
Base Case with TCVIS	1.150	1.150	1.150	1.150	1.056	1.056	1.000
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS with TCVIS	1.242	1.242	1.207	1.178	1.111	1.070	1.000
Base Case + TCVSC + RPTOOS	1.150	1.150	1.150	1.150	1.064	1.064	1.000
Base Case + TCVSC + RPTOOS with TCVIS	1.150	1.150	1.150	1.150	1.064	1.064	1.000

Table 4-4 DLO Flow-Dependent MCPR Limits ($MCPR_F$) for GNF2 Fuel
(References 7 and 16)

Flow (% Rated)	$MCPR_F$
0.0	1.88
30.0	1.70
105.0	1.24*

Table 4-5 DLO Flow-Dependent MCPR Limits ($MCPR_F$) for GNF3 Fuel
(References 7 and 16)

Flow (% Rated)	$MCPR_F$
0.0	1.78
30.0	1.58
87.4	1.20*
105.0	1.20*

Table 4-6 SLO Flow-Dependent MCPR Limits ($MCPR_F$) for GNF2 Fuel
(Reference 7)

Flow (% Rated)	$MCPR_F$
0.0	1.90
30.0	1.72
105.0	1.26

*This value is lower than the initial MCPR analyzed in the LOCA analysis. However, because PANACEA calculates the offrated MCPR by taking the maximum of the MCPRp, MCPRf, and OLMCPR, the offrated MCPR is inherently higher than analyzed in the LOCA analysis and the LOCA analysis remains applicable at all conditions.

Table 4-7 SLO Flow-Dependent MCPR Limits ($MCPR_F$) for GNF3 Fuel
(Reference 7)

Flow (% Rated)	$MCPR_F$
0.0	1.80
30.0	1.60
87.4	1.22*
105.0	1.22*

*This value is lower than the initial MCPR analyzed in the LOCA analysis. However, because PANACEA calculates the offrated MCPR by taking the maximum of the MCPRp, MCPRf, and OLMCPR, the offrated MCPR is inherently higher than analyzed in the LOCA analysis and the LOCA analysis remains applicable at all conditions.

Table 4-8 Cycle Specific SLMCPR ($MCPR_{99.9\%}$)
(Reference 7)

Flow	$MCPR_{99.9\%}$
DLO	1.09
SLO	1.11

5. LHGR

Technical Specification Sections 3.2.3 and 3.4.1

The LHGR limit is the product of the exposure dependent LHGR limits from Table 5-1 and Table 5-2 and the minimum of the power dependent LHGR Factor, $LHGRFAC_P$, or the flow dependent LHGR Factor, $LHGRFAC_F$, as applicable. The $LHGRFAC_P$ multiplier is determined from Table 5-3 and Table 5-4. The $LHGRFAC_F$ multiplier is determined from Table 5-5, Table 5-6 or Table 5-7. The SLO multipliers in Table 5-5 and Table 5-6 have been limited to a maximum value of 0.78, the SLO LHGR multiplier for GNF2 fuel. The SLO multipliers in Table 5-7 have been limited to a maximum value of 0.90, the SLO LHGR multiplier for GNF3 fuel (Reference 7).

Table 5-1 LHGR Limit for GNF2 Fuel
(References 5 and 8)

Peak Pellet Exposure	UO_2 LHGR Limit
See Table B-1 of Reference 8	

Peak Pellet Exposure	Most Limiting Gadolinia LHGR Limit
See Table B-2 of Reference 8	

Table 5-2 LHGR Limit for GNF3 Fuel
(References 5 and 9)

Peak Pellet Exposure	UO_2 LHGR Limit
See Table A-1 of Reference 9	

Peak Pellet Exposure	Most Limiting Gadolinia LHGR Limit
See Table A-2 of Reference 9	

Table 5-3 Power-Dependent LHGR Multipliers ($LHGRFAC_P$) for GNF2 Fuel, DLO and SLO
(References 7 and 16)

Application Group[1]	Core thermal Power (% rated)					
	0	25	45	60	85	100
	$LHGRFAC_P$ Multiplier					
Base Case	0.608	0.608	0.713	0.791	0.922	1.000
Base Case + TCVSC + RPTOOS + PROOS + MSROOS	0.608	0.608	0.703	0.761	0.831	1.000
Base Case + TCVSC + TBVOOS (all 5 valves)	0.608	0.608	0.713	0.791	0.922	1.000
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS	0.608	0.608	0.703	0.761	0.822	1.000
Base Case with TCVIS	0.608	0.608	0.713	0.791	0.922	1.000
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS with TCVIS	0.608	0.608	0.703	0.761	0.822	1.000
Base Case + TCVSC + RPTOOS	0.608	0.608	0.703	0.761	0.831	1.000
Base Case + TCVSC + RPTOOS with TCVIS	0.608	0.608	0.703	0.761	0.831	1.000

(1) SLO is not applicable to Base Case + TCVSC + RPTOOS and Base Case + TCVSC + RPTOOS with TCVIS.

Table 5-4 Power-Dependent LHGR Multipliers ($LHGRFAC_P$) for GNF3 Fuel, DLO and SLO
(References 7 and 16)

Application Group(1)	Core thermal Power (% rated)					
	0	25	45	60	85	100
	$LHGRFAC_P$ Multiplier					
Base Case	1.000	1.000	1.000	1.000	1.000	1.000
Base Case + TCVSC + RPTOOS + PROOS + MSROOS	0.720	0.720	0.850	0.940	1.000	1.000
Base Case + TCVSC + TBVOOS (all 5 valves)	0.955	0.955	0.955	1.000	1.000	1.000
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS	0.720	0.720	0.850	0.940	1.000	1.000
Base Case with TCVIS	1.000	1.000	1.000	1.000	1.000	1.000
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS with TCVIS	0.720	0.720	0.850	0.940	1.000	1.000
Base Case + TCVSC + RPTOOS	0.720	0.720	0.850	0.940	1.000	1.000
Base Case + TCVSC + RPTOOS with TCVIS	0.720	0.720	0.850	0.940	1.000	1.000

(1) SLO is not applicable to Base Case + TCVSC + RPTOOS and Base Case + TCVSC + RPTOOS with TCVIS.

Table 5-5 Flow-Dependent LHGR Multipliers ($LHGRFAC_F$) for GNF2 Fuel, BOC to EOC, Pressurization (All Application Groups except Base Case with TCV/TSV In-Service and Base Case + TCVSC + RPTOOS with TCV/TSV In-Service)
(References 7 and 16)

Flow (% Rated)	DLO $LHGRFAC_F$	SLO $LHGRFAC_F$(1)
0.0	0.11	0.11
30.0	0.41	0.41
67.0	0.78	0.78
89.0	1.00	0.78
105.0	1.00	0.78

(1) SLO is not applicable to Base Case + TCVSC + RPTOOS.

Table 5-6 Flow-Dependent LHGR Multipliers ($LHGRFAC_F$) for GNF2 Fuel, BOC to EOC, No Pressurization (Base Case with TCV/TSV In-Service and Base Case + TCVSC + RPTOOS with TCV/TSV In-Service)
(References 7 and 16)

Flow (% Rated)	DLO $LHGRFAC_F$	SLO $LHGRFAC_F$(2)
0.0	0.25	0.25
30.0	0.55	0.55
53.0	0.78	0.78
75.0	1.00	0.78
105.0	1.00	0.78

(2) SLO is not applicable to Base Case + TCVSC + RPTOOS with TCVIS.

Table 5-7 Flow-Dependent LHGR Multipliers ($LHGRFAC_F$) for GNF3 Fuel, BOC to EOC, All Cases
(References 7 and 16)

Flow (% Rated)	DLO $LHGRFAC_F$	SLO $LHGRFAC_F$[1]
0.0	0.307	0.307
30.0	0.584	0.584
64.2	0.900	0.900
75.0	1.000	0.900
105.0	1.000	0.900

(1) SLO is not applicable to Base Case + TCVSC + RPTOOS and Base Case + TCVSC + RPTOOS with TCVIS.

6. Rod Block Monitor

Technical Specification Sections 3.3.2.1 and 3.4.1

The Rod Block Monitor Upscale Instrumentation Setpoints are determined from the relationships shown below (Reference 3):

Table 6-1 Rod Block Monitor Setpoints

Rod Block Monitor Upscale Trip Function	Allowable Value
Two Recirculation Loop Operation	0.66 W_d + 54.0%
Single Recirculation Loop Operation	0.66 W_d + 48.7%

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

The setpoint may be lower/higher and will still comply with the rod withdrawal error (RWE) analysis because RWE is analyzed unblocked (References 7 and 16). The allowable value is clamped with a maximum value not to exceed the allowable value for a recirculation loop drive flow (W_d) of 100%.

7. Traversing In-Core Probe System (References 2, 4, and 12)

7.1. 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 with 3DM:

At any time, including BOC, the total number of failed and/or bypassed LPRMs does not exceed 25% (Reference 4). In addition, no more than 22 TIP channels can be OOS (failed or rejected) (Reference 2).

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

7.2. 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.

8. Stability Protection Setpoints

Technical Specification Section 3.3.1.3

Table 8-1 OPRM PBDA Trip Setpoints
(Reference 7)

PBDA Trip Amplitude Setpoint (Sp)	Corresponding Maximum Confirmation Count Setpoint (Np)
1.15	16

The PBDA is the only OPRM setting credited in the safety analysis as documented in the licensing basis for the OPRM system.

The OPRM PBDA trip settings are applicable when the OPRM system is declared operable, and the associated Technical Specifications are implemented.

9. Modes of Operation

The allowed modes of operation with combinations of equipment out-of-service are as described below (Reference 7).

Table 9-1 Allowed Modes of Operation and EOOS Combinations
(References 7 and 16)

Equipment Out of Service Options (1) (2) (3) (4) (5) (6) (7)	Short Names
Base Case	BASE_DLO_OPTB(A)
Base Case + SLO	BASE_SLO_OPTB(A)
Base Case + TCVSC + RPTOOS + PROOS + MSROOS	EOOS1_DLO_OPTB(A)
Base Case + TCVSC + RPTOOS + PROOS + MSROOS + SLO	EOOS1_SLO_OPTB(A)
Base Case + TCVSC + TBVOOS (all 5 valves)	EOOS2_DLO_OPTB(A)
Base Case + TCVSC + TBVOOS (all 5 valves) + SLO	EOOS2_SLO_OPTB(A)
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS	EOOS3_DLO_OPTB(A)
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS + SLO	EOOS3_SLO_OPTB(A)
Base Case with TCVIS	BASE_TCVIS_DLO_OPTB(A)
Base Case + SLO with TCVIS	BASE_TCVIS_SLO_OPTB(A)
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS with TCVIS	EOOS3_TCVIS_DLO_OPTB(A)
Base Case + TCVSC + TBVOOS (all 5 valves) + RPTOOS + PROOS + MSROOS + SLO with TCVIS	EOOS3_TCVIS_SLO_OPTB(A)
Base Case + TCVSC + RPTOOS	EOOS4_DLO_OPTB
Base Case + TCVSC + RPTOOS with TCVIS	EOOS4_TCVIS_DLO_OPTB

(1) Base case includes 1 SRVOOS + 1 TCV/TSV OOS + FWHOOS/FFWTR + 1 MSIVOOS + 1 TBVOOS + PLUOOS. The one TCV and/or TSV OOS conditions require power level ≤ 85% of rated. The one MSIVOOS condition is also supported if thermal power is maintained ≤ 75% of the rated (References 7 and 16).

(2) The 1 TBVOOS in the Base Case is not credited for fast opening or opening on pressure control (Reference 6). The assumption is that 1 TBV does not open on any signal and thus remains shut for the transients analyzed (i.e. 4 TBVs are credited and assumed in service) (Reference 10).

(3) For Application Conditions involving 5 TBVOOS, the 5 TBVs are **NOT** credited for fast opening and 3 TBVs will **not** open on pressure control (Reference 6). The #5 TBV is not available for pressure relief and thus cannot be used as one of the credited valves to open in pressure control (Reference 13).

(4) The + sign that is used in the Equipment Out of Service Option / Application Group descriptions designates an "and/or" (Reference 6).

(5) All EOOS Options are applicable to the entire range of licensed flow and feedwater temperature (MELLLA, ICF, FFWTR, and coastdown) unless otherwise specified (References 7 and 16). SLO is not applicable to MELLLA, ICF, or EOOS4.

(6) All EOOS options in Table 9-1 can be used in Option A or B (References 7 and 16); however, for EOOS4 only Option B limits are provided in the Databank.

(7) MSR is considered to be in-service when second stage reheat is receiving full flow (Reference 15).

10. Methodology

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. GNF Report NEDE-24011-P-A-31 (Revision 31), "General Electric Standard Application for Reactor Fuel," November 2020 and the U.S. Supplement NEDE-24011-P-A-31-US, November 2020.

11. References

1. Constellation Energy Generation, LLC Docket No. 50-374 LaSalle County Station, Unit 2, Facility Operating License No. NPF-18.
2. GNF Report 005N6665, Revision 0, "Exelon BWR Fleetwide Technical Evaluation of 50% TIP Strings Out-of-Service on Methods Uncertainties," March 2020.
3. Exelon Nuclear Fuels Letter NFM:MW:01-0106, "LaSalle Unit 1 and Unit 2 Rod Block Monitor COLR Setpoint Change," April 3, 2001.
4. GE Nuclear Energy Report NEDC-32694P-A, Revision 0, "Power Distribution Uncertainties for Safety Limit MCPR Evaluations," August 1999.
5. GNF Report 005N3434, Revision 0, "Fuel Bundle Information Report for LaSalle Unit 2 Reload 18 Cycle 19," December 2020.
6. Exelon TODI NF205787, Revision 1, "LaSalle Unit 2 Cycle 19 FRED Form Revision 1," November 18, 2020.
7. GNF Report 006N3804, Revision 0, "Supplemental Reload Licensing Report for LaSalle Unit 2 Reload 18 Cycle 19," December 2020.
8. GNF Document No. NEDC-33270P, Revision 11, "GNF2 Advantage Generic Compliance with NEDE-24011-P-A (GESTAR II)," August 2020.
9. GNF Document No. NEDC-33879P, Revision 4, "GNF3 Generic Compliance with NEDE-24011-P-A (GESTAR II)," August 2020.
10. Exelon TODI NF205870, Revision 1, "LaSalle Unit 2 Cycle 19 Completed OPL-3 Form," September 30, 2020.
11. GNF Letter DRF A12-00038-3, Vol. 4, "Scram Times versus Notch Position," May 22, 1992.
12. NRC Letter, "Issuance of Amendments (TAC Nos. M95156 and M95157)," October 29, 1996.
13. Exelon TODI ES1900018, Revision 2, "LaSalle GNF3 Nuclear Fuel Transition Design Inputs – F0900 Cycle-Independent Transient Analysis," November 13, 2020.
14. GNF Report 005N5612, Revision 0, "LaSalle County Station Option B' Scram Speed Implementation Engineering Report," January 2020.
15. Exelon EC 630152, Revision 1, "GNF3 NFI F0900 MCFA and MSROOS Inputs," November 13, 2020.
16. GNF Report 007N1447, Revision 0, "LaSalle Unit 2 Reload 18 Cycle 19 Supplemental Reload Licensing Report Addendum for RPTOOS + TCVSC Limits," June 2022.