NMC
Committed to Nuclear Excellence

Palisades Nuclear Plant
Operated by Nuclear Management Company, LLC

TAC No. MB 3326

November 2, 2001

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

10 CFR 50.90

NUCLEAR MANAGEMENT COMPANY, LLC
PALISADES NUCLEAR PLANT, DOCKET 50-255, LICENSE DPR-20
REQUEST FOR CHANGE TO PALISADES PLANT TECHNICAL SPECIFICATION
MAXIMUM ALLOWED VALUE FOR VARIABLE HIGH POWER TRIP

Pursuant to 10 CFR 50.90, Nuclear Management Company (NMC) requests Nuclear Regulatory Commission review and approval of a license amendment for the Palisades Nuclear Plant. The proposed amendment revises the maximum Allowable Value of the Variable High Power Trip (VHPT) from 106.5% to 111%. The proposed increase results from a change in the method used for attributing the instrument uncertainties.

The proposed amendment will also result in a small increase in the VHPT (and pre-trip alarm) calculated setpoints, due to the allowed combination of random errors without common elements using a square-root sum of the squares methodology, consistent with ANSI/ISA-S67.04-1994 "Setpoints for Nuclear Safety-Related Instrumentation," and Regulatory Guide (RG) 1.105, "Setpoints for Safety-Related Instrumentation," Revision 3. In addition, double counting for nuclear instrument uncertainties has been removed.

The small increase in the VHPT and pre-trip alarm calculated setpoints will reduce the frequency of spurious activation of the pre-trip alarm - which has occurred on numerous occasions during normal operation since the implementation of low neutron leakage core designs at Palisades.

The proposed amendment will not change the VHPT analytical limit.

Enclosure 1 provides a description of the proposed Technical Specification change, discussion and technical review, determination of No Significant Hazards Consideration, and Environmental Consideration. Enclosure 2 provides the revised Technical Specification page reflecting the proposed change. Enclosure 3 provides the annotated Technical Specification page showing the changes proposed. Enclosure 4 provides an annotated Technical Specifications Bases page, for information, since the Bases are not a formal part of the Technical Specifications.

27780 Blue Star Memorial Highway • Covert, MI 49043
Telephone: 616.764.2000

A001 Rec'd from NRC 03/04/02 original not rec'd

Nuclear Management Company, LLC (NMC) requests approval of this Technical Specification change by April 2002. NMC further requests a 60 day implementation period following amendment approval.

A copy of this request has been provided to the designated representative of the State of Michigan.

SUMMARY OF COMMITMENTS

This letter contains no new commitments and no revisions to existing commitments.

Paul A. Harden, Director, Engineering

CC Administrator, Region III, USNRC
Project Manager, NRR, USNRC
NRC Resident Inspector - Palisades

Enclosures

NUCLEAR MANAGEMENT COMPANY, LLC
PALISADES NUCLEAR PLANT
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TECHNICAL SPECIFICATION CHANGE REQUEST
ALLOWED VALUE FOR VARIABLE HIGH POWER TRIP

To the best of my knowledge, the content of this Technical Specifications change request, which proposes to change the Allowed Value for the Variable High Power Trip, is truthful and complete.

By _____
Paul A. Harden,
Director, Engineering

Sworn and subscribed to before me this 2nd day of NOVEMBER, 2001

_____
Janice M. Milan, Notary Public
Allegan County, Michigan
(Acting in Van Buren County, Michigan)
My commission expires September 6, 2003

ENCLOSURE 1

NUCLEAR MANAGEMENT COMPANY, LLC
PALISADES PLANT
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LICENSE AMENDMENT REQUEST PURSUANT TO 10 CFR 50.90: TECHNICAL SPECIFICATION MAXIMUM ALLOWED VALUE FOR VARIABLE HIGH POWER TRIP

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1.0 INTRODUCTION

This letter is a request to amend Operating License DPR-20 for the Palisades Nuclear Plant. The proposed change would revise the Appendix A, Technical Specifications, Table 3.3.1-1, Item 1, "Variable High Power Trip," to increase the maximum Allowable Value (AV) of the Variable High Power Trip (VHPT) from 106.5% to 111%. The increase results from a change in the method used for attributing the instrument uncertainties. This change is consistent with ANSI/ISA-S67.04-1994 "Setpoints for Nuclear Safety-Related Instrumentation" and Regulatory Guide (RG) 1.105, "Setpoints for Safety-Related Instrumentation," Revision 3.

The discussion that follows uses the following terms as herein defined:

Analytical Limit - Limit of a measured or calculated variable established by the safety analysis to ensure that a safety limit is not exceeded. This limit will not be affected by this proposed amendment.

Allowable Value - The limiting value that a trip setpoint may have when tested periodically, beyond which appropriate action shall be taken. This is the limit specified in Technical Specifications.

Setpoint - A predetermined value (or function) at which a device changes state to indicate that the quantity under surveillance has reached the selected value. The proposed amendment will result in an increase in the VHPT calculated setpoint consistent with ANSI/ISA-S67.04-1994 and RG 1.105, Revision 3.

2.0 DESCRIPTION OF THE PROPOSED AMENDMENT

Technical Specifications Table 3.3.1-1, Item 1, "Variable High Power Trip" would be changed to increase the maximum AV of the VHPT from 106.5% to 111%. The proposed increase results from a change in the method used for attributing the instrument uncertainties. This approach enables an increase in the maximum allowable value. By changing the allowable value in Table 3.3.1, the overly conservative result of double counting of nuclear instrument uncertainty terms are removed from the maximum Allowable Value calculation. This methodology enables an increase in the allowable value, without decreasing the margin of safety of the Reactor Protection System (RPS)

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The current Technical Specification reads:

Table 3.3.1-1 (page 1 of 2)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Variable High Power Trip	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.8	≤15% RTP above current THERMAL POWER with a minimum of ≤30% RTP and a maximum of ≤106.5% RTP

The revised Technical Specification would read:

Table 3.3.1-1 (page 1 of 2)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Variable High Power Trip	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.8	≤15% RTP above current THERMAL POWER with a minimum of ≤30% RTP and a maximum of ≤[redacted] RTP

3.0 BACKGROUND

The VHPT is part of the RPS. The RPS initiates a reactor trip to protect against violating the acceptable fuel design limits and breaching the reactor coolant pressure boundary during Anticipated Operational Occurrences (AOOs). By tripping the reactor, the RPS also assists the Engineered Safety Features (ESF) systems in mitigating accidents.

The protection and monitoring systems have been designed to ensure safe operation of the reactor. This is achieved by specifying parameters directly monitored by the RPS, as well as Limiting Conditions for Operation (LCOs) on

other reactor system parameters and equipment performance. The AV in this Technical Specification change request, in conjunction with the LCOs, establishes the threshold for protective system action to prevent exceeding acceptable limits during Design Basis Accidents (DBAs).

During AOOs, which are those events expected to occur one or more times during the plant life, the acceptable limits are:

- The Departure from Nucleate Boiling Ratio (DNBR) shall be maintained above the Safety Limit (SL) value to prevent departure from nucleate boiling;
- Fuel centerline melting shall not occur; and
- The Primary Coolant System (PCS) pressure SL of 2750 psia shall not be exceeded.

Maintaining the parameters within the above values ensures that the offsite dose will be within the 10 CFR 50 and 10 CFR 100 criteria during AOOs.

The Thermal Margin Monitors provide the complex signal processing necessary to calculate the Q Power, Thermal Margin/Low Pressure (TM/LP) trip setpoint, and VHPT setpoint. The VHPT uses Q Power as its input. Q Power is the higher power level signal of either Nuclear Instrumentation (NI) power or primary calorimetric power (ΔT) power. The measurement channels associated with the VHPT are the power range excore channels, and the PCS hot and cold leg temperature channels.

During periods in which the reactor power decreases, the VHPT setpoint tracks power levels downward so that it is always within a fixed increment above current power, subject to a minimum value. On power increases, the trip setpoint remains fixed unless manually reset. The new setpoint is a fixed increment above the Q Power at the time of reset, subject to a maximum value. Thus, during power escalation, the trip setpoint must be repeatedly manually reset to preclude an inadvertent reactor trip.

Spurious activation of the VHP pre-trip alarms have occurred on numerous occasions at Palisades during normal operation ever since a low-leakage core pattern was adopted. The cause of these alarms was thoroughly investigated. The alarms are caused by localized primary coolant temperature fluctuations due to a combination of irregular flow and temperature distribution at the core exit and the lack of mixing of the core exit flow prior to reaching the hot leg. Due to

flow pattern irregularities, water with a higher temperature briefly impacts the hot leg temperature input value to the thermal margin monitor (TMM) with no actual concurrent increase in reactor power, or other associated system changes. This phenomenon has also been identified at other nuclear power plants. The proposed amendment will enable a small increase in the VHP Pre-Trip and Trip setpoints, which in turn would reduce the frequency of these types of alarms.

4.0 REGULATORY REQUIREMENTS AND GUIDANCE

10 CFR 50.36(c)(1)(ii)(A) requires that Technical Specifications contain settings for automatic protective devices related to those variables having significant safety functions. The setting must be chosen so that automatic protective action will correct the abnormal condition before a safety limit is exceeded. Regulatory Guide 1.105, Revision 3, and ANSI/ISA-S67.04-1994, provide guidance and methodologies for determining appropriate settings.

NUREG-1432, "Standard Technical Specifications - Combustion Engineering Plants," Revision 2, contains the requirement for a VHPT function, but does not provide specific values for the minimum and maximum values for the VHPT function. NUREG-1432 indicates that plant-specific values, supported by appropriate analyses, should be substituted for the example values cited therein.

5.0 TECHNICAL ANALYSIS

The safety function provided by the VHPT will be maintained after the proposed increase in the VHPT maximum allowable value. The maximum allowable value for VHPT is determined utilizing ANSI/ISA-S67.04-1994 and RG 1.105, Revision 3 methodology. This methodology defines the Analytical Limit, the Allowable Value and Calculated Trip Setpoint for nuclear safety related setpoints. The proposed increases in maximum allowable value and calculated setpoint of the VHPT are due to a change in the methodology used for attributing the instrument uncertainties. Double accounting for nuclear instrumentation uncertainties has been removed and other uncertainties have been combined using the methodology (Method 3) consistent with ANSI/ISA-S67.04-1994 and Regulatory Guide (RG) 1.105, Revision 3.

The following limits, uncertainties, and biases are input variables to the determination of the VHPT maximum allowable value and calculated trip setpoint:

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Analytical Limit (AL):

The Analytical Limit is used in the Final Safety Analysis Report (FSAR), Chapter 14 safety analysis. The safety analysis considers over power events up to 115% Reactor Power.

AL = 115% Reactor Power

Process Measurement Error (PME):

The heat balance uncertainty is ±2%, therefore the Process Measurement Error (PME) is:

PME = ±2%

Transient Decalibration (TD):

A Transient Decalibration error of 3% of Reactor Power, as indicated by the Neutron Monitoring System, was applied in the original VHPT Allowable Value calculation. The Transient Decalibration error, to simulate a fast transient to an overpower condition, is attributed to changes in the primary system coolant temperatures, reactor control rod configuration, and radial core power distribution. Therefore, the Transient Decalibration is considered a bias error term and is:

TD = 3%.

Allowable Difference (AD):

The Neutron Monitoring System total power level signal may not be representative of the actual reactor power at the beginning of an overpower transient condition. During power escalation, the power signals of the NI channels and the ΔT power signals do not track exactly together. If the difference reaches 3% of reactor power, a control room alarm is actuated to alert the control room operator of the condition and to perform adjustments to re-align the signals. The original 3% uncertainty value assigned to the AD term was based on an alarm value of 3%.

An analysis for 100% reactor power was performed to ensure that the Analytical Limit of 115% reactor power is not exceeded. The analysis at 100% reactor power level is the most limiting case and encompasses the trip function at the

lower power levels.

A heat balance is performed once per day while operating at steady state conditions. If the Neutron Monitoring System power level signal or the ΔT power level signals measured represent an error of greater than 1%, the channels are adjusted to reduce channel error to less than 1%. The possibility exists that the error could be just under 1% without channel adjustment. At the next heat balance, the channel's reactor power signal error could be greater than 1%, but less than 2%. Under these conditions the channel's reactor power signal would be returned to within specifications. If the error were to reach 2%, a condition report is required and an analysis will be performed to ensure that the analytical limit was not compromised.

Based on performing the heat balance once per day, and for conservatism, one of the Allowable Differences, AD_1, is assigned a value of 2%.

For conservatism in establishing the setpoint allowable value, an additional 1% value for Allowable Difference, AD_2, is assigned to the region between the setpoint allowable value and the analytical limit. This will ensure that the calculated setpoint and allowable value are conservative and in accordance with ANSI/ISA-S67.04-1994 methodology.

AD_1 and AD_2 are considered as bias uncertainty terms and are:

$AD_1 = 2\%$, and

$AD_2 = 1\%$

Thermal Margin Monitor – Variable High Power Trip Function

The Total Loop Uncertainty for the TMM – VHPT function, combines the Neutron Monitoring System uncertainties and the uncertainties of the TMM Analog to Digital (A/D) conversion. The uncertainty terms for the TMM are extremely small (< 0.05%) and are insignificant with respect to the other uncertainty terms. Therefore the Total Loop Uncertainty for the TMM – VHPT (TLU_{VHPT}) is equal to the Neutron Monitoring System Total Loop Uncertainty (TLU_{NMS}):

$TLU_{VHPT} = TLU_{NMS}$

$TLU_{NMS} = \pm 0.5\%$ (based on performance of daily heat balance)

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Note: The NMS uncertainty of 0.5% is based on performing daily Neutron Monitoring System Total Power verification or adjustment, which effectively calibrates out instrument uncertainties and any drift effects. With the daily Total Power signal verifications, the drift uncertainty is not applicable. The TLU_{NMS} value without drift effects is $TLU_{NMS}=\pm 0.5\%$. This is the as found setting tolerance of the digital indicator used for performing the daily adjustments.

Allowable Value and Calculated Setpoint:

The AV is defined as the maximum value as specified in the Technical Specifications for the VHPT. The current value is 106.5%. The proposed amendment revises the maximum AV for the VHPT to 111%.

AV = 106.5% (Current Value)

AV = 111% (Proposed change)

The original calculation used to determine the difference between the VHPT Analytical Limit (AL) and AV included the PME, instrument Total Loop Uncertainties (TLU), Transient Decalibration (TD) and all ADs.

The proposed Technical Specification AV is determined using ANSI/ISA S67.04-1994 methodology. To determine the proposed VHPT AV, the trip setpoint is calculated by deducting the applicable uncertainties (including margin) from the Analytical Limit (AL).

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The **Calculated VHP Trip Setpoint** is computed using the following equation:

VHP Trip Setpoint, TS $= AL - (AD_2 + TD) - (AD_1 + [PME^2 + TLU_{NMS}^2]^{1/2}) - M$

$= 115\% - (1.0\% + 3.0\%) - (2.0\% + [2.0\%^2 + 0.5\%^2]^{1/2}) - 0.44\%$

$= 106.5\%$

Where:

TS	= Trip Setpoint
AL	= Analytical Limit
AD_1	= Allowable Difference (bias uncertainty)
AD_2	= Allowable Difference (bias uncertainty)
TD	= Transient Decalibration
PME	= Process Measurement Error
TLU_{NMS}	= Total Loop Uncertainty for the VHP circuit (same as NMS).
M	= Margin Term

Subsequently, the VHPT (AV) is determined based on the calculated trip setpoint (TS), adding appropriate instrument uncertainties with the margin term (M). ANSI/ISA S67.04-1994 methodology allows for insertion of margin terms for conservatism and added protection against exceeding the analytical limit.

New VHP Trip Allowable Value, AV $= TS + (AD_1 + [PME^2 + TLU_{NMS}^2]^{1/2}) + M$

$= 106.5\% + (2.0\% + [2.0\%^2 + 0.5\%^2]^{1/2}) + 0.44\%$

$= \mathbf{111.0\%}$

See Figure 1 for a visual representation describing how the different uncertainty terms were applied in determining the VHPT allowable value and the calculated trip setpoint. Figure 2 is included for comparison purposes. It describes the current application of uncertainty terms for the AV, TS and AL and shows how the NI Uncertainties are accounted for twice.

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6.0 REGULATORY ANALYSIS

In accordance with 10 CFR 50.36(c)(1)(ii)(A), the proposed Technical Specification change provides the appropriate limit for the maximum allowed value for the VHPT. This value has been determined in accordance with the guidance and methodologies of Regulatory Guide 1.105, Revision 3, and ANSI/ISA-S67.04-1994.

The proposed requirement is consistent with that presented in NUREG-1432, Revision 2. The proposed maximum AV for the VHPT was determined based on plant-specific analyses.

7.0 NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Nuclear Management Company has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment." The following evaluation supports the finding that operation of the facility in accordance with the proposed change would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed change to the maximum Allowable Value for the Variable High Power Trip (VHPT) function in the Technical Specifications would not change or remove any considerations of uncertainties from the FSAR Chapter 14 Safety Analysis. The methodology that was utilized in determining the recommended change in the maximum allowable value follows standard ANSI/ISA-S67.04-1994, "Setpoints for Nuclear Safety-Related Instrumentation," and NRC Regulatory Guide 1.105, "Setpoints for Safety-Related Instrumentation," Revision 3. With the proposed changes to the maximum allowable value and calculated setpoint of the VHPT in place, the reactor is still protected from reaching the analytical limit of 115% reactor power.

   Therefore, operation of the facility in accordance with the proposed change to the Technical Specifications would not involve a significant increase in the probabillty or consequences of an accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any

previously evaluated.

The proposed changes to the maximum Allowable Value and Calculated Setpoint for the Variable High Power Trip function in the Technical Specifications would not change or add a system function. The proposed change alters the way the uncertainties (including uncertainties of instrument measurement and calibration) are accounted for without actually removing uncertainties from the calculation. This proposed change follows the standard ANSI/ISA-S67.04-1994 and NRC Regulatory Guide 1.105, Revision 3.

Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Involve a significant reduction in a margin of safety.

The proposed change to the maximum Allowable Value for the Variable High Power Trip function in the Technical Specifications would account for all uncertainties in the VHP trip setpoint calculation, instead of taking them into account in the maximum allowable value calculation, as is currently done. In addition, double accounting for nuclear instrumentation uncertainties has been removed. The uncertainties will still be taken into account in determining the calculated setpoint based on the maximum allowable value of the VHPT, in accordance with the standard ANSI/ISA-S67.04-1994 and NRC Regulatory Guide 1.105, Revision 3. This methodology continues to assure that the Analytical Limit will not be exceeded.

Therefore, the proposed change to the Technical Specifications would not involve a significant reduction in a margin of safety.

8.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would not change requirements with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20. The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or

environmental assessment need be prepared in connection with the proposed amendment.

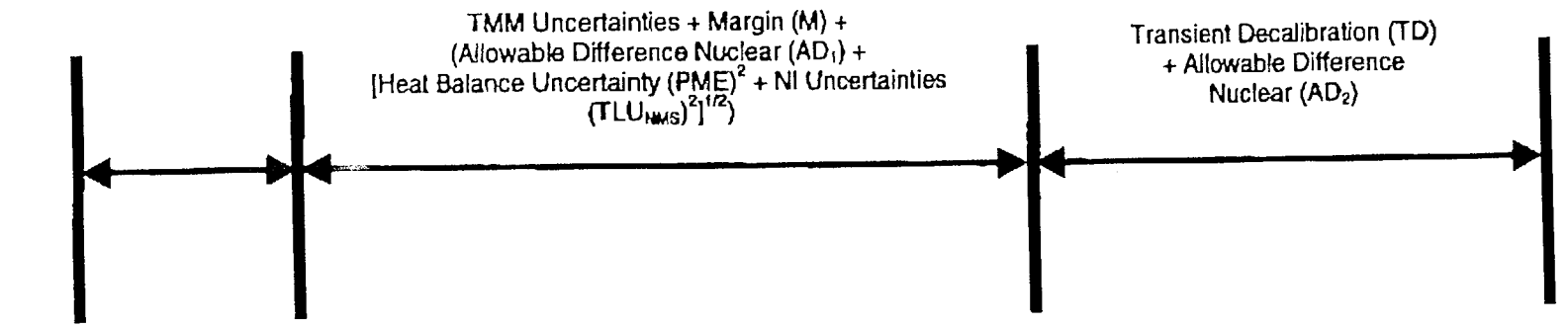
9.0 PRECEDENT

A search of NRC actions on license amendments disclosed no directly applicable precedents.

10.0 CONCLUSION

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. The Palisades Plant Review Committee has reviewed this amendment request and has determined that the change involves no significant hazards consideration. The Palisades Offsite Safety Review Committee has concurred in this determination.

FIGURE 1:
Proposed VHP Trip Calculated Setpoint, and New Technical Specification Allowable Value



TMM UNCERTAINTIES
A/D Reference Accuracy
A/D Temperature Effects

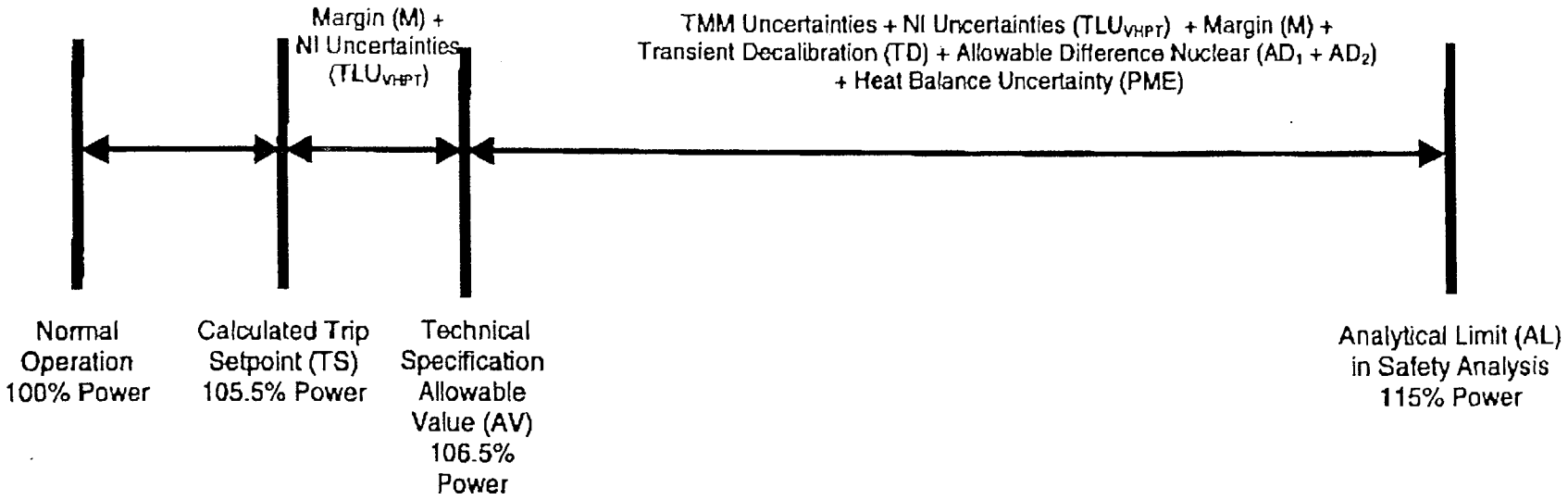
NI UNCERTAINTIES
Digital Indicator Error

HEAT BALANCE UNCERTAINTY
PME Process Measurement Error

TRANSIENT DECALIBRATION
TD Neutron Monitoring System Error

ALLOWABLE DIFFERENCE NUCLEAR
AD_1 and AD_2 Bias Uncertainty Terms

FIGURE 2:
Current VHP Trip Calculated Setpoint, and Technical Specification Allowable Value



TMM UNCERTAINTIES
A/D Reference Accuracy
A/D Temperature Effects

NI UNCERTAINTIES
Reference Accuracy
Setting Tolerance
M&TE and Drift

HEAT BALANCE UNCERTAINTY
PME Process Measurement Error

TRANSIENT DECALIBRATION
TD Neutron Monitoring System Error

ALLOWABLE DIFFERENCE NUCLEAR
AD_1 and AD_2 Bias Uncertainty Terms

ENCLOSURE 2

NUCLEAR MANAGEMENT COMPANY, LLC
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LICENSE AMENDMENT REQUEST PURSUANT TO 10 CFR 50.90: TECHNICAL SPECIFICATION MAXIMUM ALLOWED VALUE FOR VARIABLE HIGH POWER TRIP

REVISED TECHNICAL SPECIFICATION PAGE 3.3.1-6
AND
TECHNICAL SPECIFICATION PAGE CHANGE INSTRUCTIONS

3 Pages

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TECHNICAL SPECIFICATIONS

PAGE CHANGE INSTRUCTIONS

Remove	**Replace With**
Page 3.3.1-6, Amendment 189	Page 3.3.1-6, Amendment xxx

Table 3.3.1-1 (page 1 of 2)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Variable High Power Trip	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.8	≤ 15% RTP above current THERMAL POWER with a minimum of ≤ 30% RTP and a maximum of ≤ 111% RTP
2. High Startup Rate Trip[b]	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.8	NA
3. Low Primary Coolant System Flow Trip[c]	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≥ 95%
4. Low Steam Generator A Level Trip	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≥ 25.9% narrow range
5. Low Steam Generator B Level Trip	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≥ 25.9% narrow range
6. Low Steam Generator A Pressure Trip[c]	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≥ 500 psia
7. Low Steam Generator B Pressure Trip[c]	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≥ 500 psia
8. High Pressurizer Pressure Trip	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≤ 2255 psia

(a) With more than one full-length control rod capable of being withdrawn and PCS boron concentration less than REFUELING BORON CONCENTRATION.
(b) Trip may be bypassed when Wide Range Power is < 1E-4% RTP or when THERMAL POWER is > 13% RTP.
(c) Trips may be bypassed when Wide Range Power is < 1E-4% RTP. Bypass shall be automatically removed when Wide Range Power is ≥ 1E-4% RTP.

ENCLOSURE 3

NUCLEAR MANAGEMENT COMPANY, LLC
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LICENSE AMENDMENT REQUEST PURSUANT TO 10 CFR 50.90:
TECHNICAL SPECIFICATION MAXIMUM ALLOWED VALUE FOR VARIABLE HIGH POWER TRIP

MARK-UP OF TECHNICAL SPECIFICATION PAGE 3.3.3-6
(Showing proposed change)

2 Pages

Table 3.3.1-1 (page 1 of 2)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Variable High Power Trip	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.8	≤ 15% RTP above current THERMAL POWER with a minimum of ≤ 30% RTP and a maximum of ≤ ~~106.5~~111% RTP
2. High Startup Rate Trip[b]	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.8	NA
3. Low Primary Coolant System Flow Trip[c]	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≥ 95%
4. Low Steam Generator A Level Trip	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≥ 25.9% narrow range
5. Low Steam Generator B Level Trip	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≥ 25.9% narrow range
6. Low Steam Generator A Pressure Trip[c]	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≥ 500 psia
7. Low Steam Generator B Pressure Trip[c]	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≥ 500 psia
8. High Pressurizer Pressure Trip	1,2,3[a],4[a],5[a]	SR 3.3.1.1 SR 3.3.1.5 SR 3.3.1.8	≤ 2255 psia

(a) With more than one full-length control rod capable of being withdrawn and PCS boron concentration less than REFUELING BORON CONCENTRATION.
(b) Trip may be bypassed when Wide Range Power is < 1E-4% RTP or when THERMAL POWER is > 13% RTP.
(c) Trips may be bypassed when Wide Range Power is < 1E-4% RTP. Bypass shall be automatically removed when Wide Range Power is ≥ 1E-4% RTP.

ENCLOSURE 4

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LICENSE AMENDMENT REQUEST PURSUANT TO 10 CFR 50.90: TECHNICAL SPECIFICATION MAXIMUM ALLOWED VALUE FOR VARIABLE HIGH POWER TRIP

MARK-UP OF TECHNICAL SPECIFICATION BASES – FOR INFORMATION
(Showing expected changes following approval of this request)

2 Pages

BASES

LCO (continued)

1. Variable High Power Trip (VHPT) (continued)

The VHPT is designed to limit maximum reactor power to its maximum design and to terminate power excursions initiating at lower powers without power reaching this full power limit. During plant startup, the VHPT trip setpoint is initially at its minimum value, ≤ 30%. Below 30% RTP, the VHPT setpoint is not required to "track" with Q Power, i.e., be adjusted to within 15% RTP. It remains fixed until manually reset, at which point it increases to ≤ 15% above existing Q Power.

The maximum allowable setting of the VHPT is ~~106.5~~ 111% RTP. Adding to this the possible variation in trip setpoint due to calibration and instrument error, the maximum actual steady state power at which a trip would be actuated is 115%, which is the value assumed in the safety analysis.

2. High Startup Rate Trip

This LCO requires four channels of High Startup Rate Trip Function to be OPERABLE in MODES 1 and 2.

The High Startup Rate trip serves as a backup to the administratively enforced startup rate limit. The Function is not credited in the accident analyses; therefore, no Allowable Value for the trip or operating bypass Functions is derived from analytical limits and none is specified.

The four channels of the High Startup Rate trip are derived from two wide range NI signal processing drawers. Thus, a failure in one wide range channel could render two RPS channels inoperable. It is acceptable to continue operation in this condition because the High Startup Rate trip is not credited in any safety analyses.

The requirement for this trip Function is modified by a footnote, which allows the High Startup Rate trip to be bypassed when the wide range NI indicates below 10E-4% or when THERMAL POWER is above 13% RTP. If a High Startup Rate trip is bypassed when power is between these limits, it must be considered to be inoperable.