NMC
Committed to Nuclear Excellence

Palisades Nuclear Plant
Operated by Nuclear Management Company, LLC

September 18, 2003 10 CFR 50.90

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

PALISADES NUCLEAR PLANT
DOCKET 50-255
LICENSE No. DPR-20
LICENSE AMENDMENT REQUEST: RELOCATION OF DEPARTURE FROM NUCLEATE BOILING LIMITS TO THE CORE OPERATING LIMITS REPORT

Pursuant to 10 CFR 50.90, Nuclear Management Company, LLC (NMC) requests Nuclear Regulatory Commission (NRC) review and approval of a proposed license amendment for the Palisades Nuclear Plant. NMC proposes to revise Limiting Condition for Operation (LCO) 3.4.1 of Technical Specifications (TS), by relocating the primary coolant system (PCS) pressure, temperature, and flow departure from nucleate boiling (DNB) limits to the Core Operating Limits Report (COLR). NMC also proposes to revise TS section 5.6.5, "Core Operating Limits Report," to reflect the proposed change to LCO 3.4.1. These proposed changes would allow NMC to modify these limits using NRC approved methodologies described in TS section 5.6.5 without the need for a license amendment request. NMC has determined that the proposed changes conform to the NRC guidance provided in Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits From Technical Specifications."

Attachment 1 provides a detailed description of the proposed change, background and technical analysis, No Significant Hazards Consideration Determination, and Environmental Review Consideration. Attachment 2 provides the revised TS pages reflecting the proposed change. Attachment 3 provides the annotated TS pages showing the changes proposed.

NMC requests approval of this proposed license amendment by July 30, 2004, to support planned pre-refueling outage activities. NMC further requests a 90-day implementation period following amendment approval.

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

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

I declare under penalty of perjury that the foregoing is true and accurate. Executed on September 18, 2003.

Daniel J. Malone
Site Vice-President, Palisades Nuclear Plant

CC Regional Administrator, USNRC, Region III
Project Manager, Palisades Nuclear Plant, USNRC, NRR
NRC Resident Inspector – Palisades Nuclear Plant

Attachments

ATTACHMENT 1

NUCLEAR MANAGEMENT COMPANY
PALISADES NUCLEAR PLANT
DOCKET 50-255

September 18, 2003

LICENSE AMENDMENT REQUEST: RELOCATION OF DEPARTURE FROM NUCLEATE BOILING LIMITS TO THE CORE OPERATING LIMITS REPORT

6 Pages Follow

1.0 DESCRIPTION

Nuclear Management Company, LLC (NMC) requests to amend Operating License DPR-20 for the Palisades Nuclear Plant. NMC proposes to revise Limiting Condition for Operation (LCO) 3.4.1 of Technical Specifications (TS), by relocating the primary coolant system (PCS) pressure, temperature, and flow departure from nucleate boiling (DNB) limits to the Core Operating Limits Report (COLR). NMC also proposes to revise TS section 5.6.5, "Core Operating Limits Report," to reflect the proposed change to LCO 3.4.1. These proposed changes would allow NMC to modify these limits using Nuclear Regulatory Commission (NRC) approved methodologies described in TS section 5.6.5 without the need for a license amendment request. NMC has determined that the proposed changes conform to the NRC guidance provided in Generic Letter (GL) 88-16, "Removal of Cycle-Specific Parameter Limits From Technical Specifications."

2.0 PROPOSED CHANGE

NMC proposes the following changes:

Pressurizer pressure, PCS cold leg temperature, and PCS total flow limits in TS LCO 3.4.1 (page 3.4.1-1) and surveillance requirements (SRs) 3.4.1.1, 3.4.1.2, and 3.4.1.3 (page 3.4.1-2) would be replaced with a statement referencing limits specified in the COLR.

TS section 5.6.5, "Core Operating Limits Report (COLR)," specifically in section 5.6.5.a and applicable analytical methods in 5.6.5.b, would be modified to reflect LCO 3.4.1 DNB limits documented in the COLR.

3.0 BACKGROUND

TS LCO 3.4.1 addresses requirements for maintaining pressurizer pressure, PCS cold leg temperature, and PCS total flow rate within limits assumed in the safety analyses. The safety analyses of normal operating conditions and anticipated operational occurrences assume initial conditions within the normal steady state envelope. The limits placed on DNB related parameters ensure that these parameters, when appropriate measurement uncertainties are applied, will not be less conservative than those assumed in the safety analyses and thereby provide assurance that the minimum departure from nucleate boiling ratio (DNBR) will meet the required criteria for each of the analyzed transients.

Another set of limits on DNB related parameters is provided in Safety Limit (SL) 2.1.1, "Reactor Core Safety Limits." The restriction of the SLs prevents overheating of the fuel and cladding that would result in the release of fission products to the primary coolant. The limits of LCO 3.4.1, in combination with other LCOs, are designed to prevent violation of the reactor core SLs.

The LCO 3.4.1 limits for minimum and maximum PCS pressures, as measured at the pressurizer, are consistent with operation within the nominal operating envelope and are bounded by those used as the initial pressures in the safety analyses.

The LCO 3.4.1 limit for maximum PCS cold leg temperature is consistent with operation at steady state power levels and is bounded by those used as the initial temperatures in the safety analyses.

The LCO 3.4.1 limit for minimum PCS flow rate is bounded by those used as the initial flow rates in the safety analyses. The PCS flow rate is not expected to vary during plant operation with all primary coolant pumps operating.

4.0 TECHNICAL ANALYSIS

The safety analyses for Palisades Nuclear Plant are performed using the analytical methods described in TS section 5.6.5, "Core Operating Limits Report." The proposed change would relocate the PCS DNB limits in LCO 3.4.1 to the COLR. All of the analytical methods described in TS section 5.6.5 have been approved by the NRC and are available for use in Palisades safety analyses. A revision to the safety analyses would be required whenever a change to any DNB limit was warranted due to operating fuel cycle design and analyses. Any revisions to the safety analyses must be evaluated per 10 CFR 50.59 in order for the change to take place without prior NRC review and approval. All revisions to the COLR are provided to the NRC per TS section 5.6.5.d.

Therefore, these proposed changes will have no adverse effect on plant safety.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

Nuclear Management Company, LLC (NMC) 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," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed amendment relocates the primary coolant system (PCS) departure from nucleate boiling (DNB) limits to the core operating limits report (COLR) and does not involve any change to the PCS DNB limits themselves. The proposed amendment does not involve operation of any required structures, systems, or components (SSCs) in a manner or configuration different from those previously recognized or evaluated. The Nuclear Regulatory Commission (NRC) has approved all the analytical methods described in Technical Specification (TS) section 5.6.5, "Core Operating Limits Report (COLR)." Relocation of the PCS DNB limits to the COLR will maintain existing operating fuel cycle analysis requirements. Any future revisions to the safety analyses that require prior NRC approval are identified per the 10 CFR 50.59 review process.

Therefore, the probability of an accident previously evaluated will not be increased by the proposed change.

The consequences of an accident previously evaluated will not be increased since the reactor is still protected from violating the PCS DNB parameters used in the safety analysis for Palisades Nuclear Plant.

Therefore, operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed amendment to relocate the PCS DNB limits to the COLR would not change or add a system function. The proposed amendment does not involve operation of any required SSCs in a manner or configuration different from those previously recognized or evaluated. No new failure mechanisms will be introduced by the proposed change.

Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed amendment to relocate the PCS DNB limits to the COLR will continue to assure that the acceptance criteria established in the safety analysis will be met. The safety analyses of normal operating conditions and anticipated operational occurrences assume initial conditions within the normal steady state envelope. The limits placed on DNB related parameters ensure that these parameters, when appropriate measurement uncertainties are applied, will not be less conservative than those assumed in the safety analyses and thereby provide assurance that the minimum departure from nucleate boiling ratio (DNBR) will meet the required criteria for each of the analyzed transients. The proposed amendment does not change the existing PCS DNB limits. Any future revisions to the safety analyses that require prior NRC approval are identified per the 10 CFR 50.59 review process.

Therefore, the proposed amendment would not involve a significant reduction in a margin of safety.

Based on the evaluation above, NMC concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

GL 88-16 provided NRC guidance for removal of cycle-specific parameter limits from the TSs. GL 88-16 specifies three actions:

1. The addition of the definition of a named formal report that includes the values of cycle-specific parameter limits that have been established using an NRC-approved methodology and consistent with all applicable limits of the safety analysis,

2. the addition of an administrative reporting requirement to submit the formal report on cycle-specific parameter limits to the Commission for information, and

3. the modification of individual TS to note that cycle-specific parameters shall be maintained within the limits provided in the defined formal report.

GL 88-16 action 1 is met by existing TS section 1.1 that contains the definition for the COLR. GL 88-16 action 2 is met by existing TS section 5.6.5 that contains the administrative reporting requirements specific to the COLR. The proposed amendment addresses GL 88-16 action 3 by requesting that the PCS DNB limits be relocated to the COLR. NMC anticipates that the maximum PCS cold leg temperature limit will need to be revised to support the next operating fuel cycle using NRC approved methodologies described in TS section 5.6.5. In addition, the limits for pressurizer pressure and PCS total flow rate have been revised in previous license amendments for the Palisades Nuclear Plant. All of these limits have the potential to be revised to support cycle-specific safety analyses. Therefore, NMC concludes that the parameter limits being relocated to the COLR meet the guidance provided by GL 88-16.

In conclusion, based on the considerations described 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.

6.0 ENVIRONMENTAL CONSIDERATION

NMC has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, 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.

7.0 REFERENCES

On October 12, 1990, the NRC approved a similar license amendment request for the Millstone Nuclear Power Station, Unit No. 2, Docket 50-336, License DPR-65, Amendment 148. The scope of the change included relocating the limits for cold leg temperature, pressurizer pressure, and reactor coolant flow rate to the COLR.

ATTACHMENT 2

NUCLEAR MANAGEMENT COMPANY
PALISADES NUCLEAR PLANT
DOCKET 50-255

September 18, 2003

LICENSE AMENDMENT REQUEST: RELOCATION OF DEPARTURE FROM NUCLEATE BOILING LIMITS TO THE CORE OPERATING LIMITS REPORT

REVISED TECHNICAL SPECIFICATION PAGES
3.4.1-1, 3.4.1-2, 5.0-25, and 5.0-27
AND
OPERATING LICENSE PAGE CHANGE INSTRUCTIONS

5 Pages Follow

ATTACHMENT TO LICENSE AMENDMENT NO.

FACILITY OPERATING LICENSE NO. DPR-20

DOCKET NO. 50-255

Remove the following pages of Technical Specifications and replace with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE	INSERT
3.4.1-1	3.4.1-1
3.4.1-2	3.4.1-2
5.0-25	5.0-25
5.0-27	5.0-27

3.4 PRIMARY COOLANT SYSTEM (PCS)

3.4.1 PCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

LCO 3.4.1 PCS DNB parameters for pressurizer pressure, cold leg temperature, and PCS total flow rate shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer pressure, PCS cold leg temperature, or PCS total flow rate not within limits.	A.1 Restore parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure within the limits specified in the COLR.	12 hours
SR 3.4.1.2	Verify PCS cold leg temperature within the limit specified in the COLR.	12 hours
SR 3.4.1.3	----------NOTE---------- Not required to be performed until 31 EFPD after THERMAL POWER is ≥ 90% RTP. ----------	
	Verify PCS total flow rate within the limit specified in the COLR.	18 months AND After each plugging of 10 or more steam generator tubes

5.6 Reporting Requirements

5.6.4 Monthly Operating Report

Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis to the NRC no later than the fifteenth of each month following the calendar month covered by the report.

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:

3.1.1	Shutdown Margin
3.1.6	Regulating Rod Group Position Limits
3.2.1	Linear Heat Rate Limits
3.2.2	Radial Peaking Factor Limits
3.2.4	ASI Limits
3.4.1	DNB Limits

b. The analytical methods used to determine the core operating limits shall be those approved by the NRC, specifically those described in the latest approved revision of the following documents:

1. EMF-96-029(P)(A) Volumes 1 and 2, "Reactor Analysis System for PWRs," Siemens Power Corporation.
(LCOs 3.1.1, 3.1.6, 3.2.1, 3.2.2, & 3.2.4)

2. ANF-84-73 Appendix B (P)(A), "Advanced Nuclear Fuels Methodology for Pressurized Water Reactors: Analysis of Chapter 15 Events," Advanced Nuclear Fuels Corporation. (Bases report not approved) (LCOs 3.1.1, 3.1.6, 3.2.1, 3.2.2, & 3.2.4)

3. XN-NF-82-21(P)(A), "Application of Exxon Nuclear Company PWR Thermal Margin Methodology to Mixed Core Configurations," Exxon Nuclear Company. (LCOs 3.2.1, 3.2.2, & 3.2.4)

4. EMF-84-093(P)(A), "Steam Line Break Methodology for PWRs, "Siemens Power Corporation.
(LCOs 3.1.1, 3.1.6, 3.2.1, 3.2.2, & 3.2.4)

5. XN-75-32(P)(A) Supplements 1 through 4, "Computational Procedure for Evaluating Fuel Rod Bowing," Exxon Nuclear Company. (Bases document not approved)
(LCOs 3.1.6, 3.2.1, 3.2.2, & 3.2.4)

5.6 Reporting Requirements

5.6.5 COLR (continued)

14. EMF-92-116(P)(A), "Generic Mechanical Design Criteria for PWR Fuel Designs," Siemens Power Corporation. (LCOs 3.1.6, 3.2.1, 3.2.2, & 3.2.4)

15. EMF-2087(P)(A), "SEM/PWR-98: ECCS Evaluation Model for PWR LBLOCA Applications," Siemens Power Corporation. (LCOs 3.1.6, 3.2.1, & 3.2.2)

16. ANF-87-150 Volume 2, "Palisades Modified Reactor Protection System Report: Analysis of Chapter 15 Events," Advanced Nuclear Fuels Corporation. [Approved for use in the Palisades design during the NRC review of license Amendment 118, November 15, 1988] (LCOs 3.1.6, 3.2.1, 3.2.2, & 3.4.1)

17. EMF-1961(P)(A), Revision 0, Siemens Power Corporation, July 2000, "Statistical Setpoint/Transient Methodology for Combustion Engineering Type Reactors." (LCOs 3.1.6, 3.2.1, 3.2.2, 3.2.4, & 3.4.1)

18. EMF-2328 (P)(A), Revision 0, Framatome ANP, Inc., March 2001, "PWR Small Break LOCA Evaluation Model, S-RELAP5 Based." (LCOs 3.1.6, 3.2.1, & 3.2.2)

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 limits, nuclear limits such as shutdown margin, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any mid cycle revisions or supplements, shall be provided, upon issuance for each reload cycle, to the NRC.

ATTACHMENT 3

NUCLEAR MANAGEMENT COMPANY
PALISADES NUCLEAR PLANT
DOCKET 50-255

September 18, 2003

LICENSE AMENDMENT REQUEST: RELOCATION OF DEPARTURE FROM NUCLEATE BOILING LIMITS TO THE CORE OPERATING LIMITS REPORT

MARK-UP OF TECHNICAL SPECIFICATION PAGES
3.4.1-1, 3.4.1-2, 5.0-25, and 5.0-27
(showing proposed changes)
(additions are double underlined; deletions are strikethrough)

4 Pages Follow

3.4 PRIMARY COOLANT SYSTEM (PCS)

3.4.1 PCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

LCO 3.4.1 PCS DNB parameters for pressurizer pressure, cold leg temperature, and PCS total flow rate shall be within the limits specified in the COLR. ~~below:~~

~~a. Pressurizer pressure ≥ 2010 psia and ≤ 2100 psia;~~

~~b. The PCS cold leg temperature (T_c) shall not exceed the value given by the following equation:~~

~~$T_c \leq 542.99 + 0.0580(P-2060) + 0.00001(P-2060)^2 + 1.126(W-138) - 0.0205(W-138)^2$~~

~~Where: T_c = PCS cold leg temperature in °F~~
~~P = nominal operation pressure in psia~~
~~W = total recirculating mass flow in 1E6 lb/hr corrected to the operating temperature conditions.~~

~~NOTE~~
~~If the measured primary coolant system flow is greater than 150.0 E6 lbm/hr, the maximum T_c shall be less than or equal to the T_c derived at 150.0 E6 lbm/hr.~~

~~c. PCS total flow rate ≥ 352,000 gpm.~~

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer pressure, PCS cold leg temperature, or PCS total flow rate not within limits.	A.1 Restore parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure within the limits specified in the COLR. ~~≥ 2010 psia and ≤ 2100 psia.~~	12 hours
SR 3.4.1.2	Verify PCS cold leg temperature within the limit specified in the COLR. ~~≤ 642.99 + 0.0580(P-2060) + 0.00001(P-2060)^2 + 1.125(W-138) - 0.0205(W-138)^3.~~	12 hours
SR 3.4.1.3	----------NOTE---------- Not required to be performed until 31 EFPD after THERMAL POWER is ≥ 90% RTP. ----------	
	Verify PCS total flow rate within the limit specified in the COLR. ~~is ≥ 352,000 gpm.~~	18 months AND After each plugging of 10 or more steam generator tubes

5.6 Reporting Requirements

5.6.4 Monthly Operating Report

Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis to the NRC no later than the fifteenth of each month following the calendar month covered by the report.

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3.1.1	Shutdown Margin
3.1.6	Regulating Rod Group Position Limits
3.2.1	Linear Heat Rate Limits
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3.2.4	ASI Limits
3.4.1	DNB Limits

b. The analytical methods used to determine the core operating limits shall be those approved by the NRC, specifically those described in the latest approved revision of the following documents:

1. EMF-96-029(P)(A) Volumes 1 and 2, "Reactor Analysis System for PWRs," Siemens Power Corporation.
(LCOs 3.1.1, 3.1.6, 3.2.1, 3.2.2, & 3.2.4)

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5.6.5 COLR (continued)

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15. EMF-2087(P)(A), "SEM/PWR-98: ECCS Evaluation Model for PWR LBLOCA Applications," Siemens Power Corporation. (LCOs 3.1.6, 3.2.1, & 3.2.2)

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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 limits, nuclear limits such as shutdown margin, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any mid cycle revisions or supplements, shall be provided, upon issuance for each reload cycle, to the NRC.