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L-PI-14-002
10 CFR 50.90

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

Prairie Island Nuclear Generating Plant Units 1 and 2
Dockets 50-282 and 50-306
Renewed License Nos. DPR-42 and DPR-60

Supplement to License Amendment Request (LAR) to Add a Methodology to Technical Specification (TS) 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)" (TAC Nos. MF1891 and MF1892)

By letter dated May 23, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML131144A750), Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), submitted a license amendment request for Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2, to add a methodology to TS 5.6.5. By emails dated December 3, 2013 (ML13338A124), and February 12, 2014 (ML14043A534) the NRC Staff requested additional information (RAI) on the May 23, 2013, LAR. The enclosure to this letter provides the responses to the NRC Staff requests for additional information. NSPM submits this supplement in accordance with the provisions of 10 CFR 50.90.

The supplemental information provided in this letter and enclosure does not impact the conclusions of the Determination of No Significant Hazards Consideration or Environmental Assessment presented in the May 23, 2013, (ML131144A750) submittal.

In accordance with 10 CFR 50.91, NSPM is notifying the State of Minnesota of this LAR supplement by transmitting a copy of this letter and enclosure to the designated State Official.

If there are any questions or if additional information is needed, please contact Mr. Dale Vincent, P.E., at 651-267-1736.

Summary of Commitments

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

I declare under penalty of perjury that the foregoing is true and correct.

Executed on

 3/25/2014

Scott Sharp

Director Site Operations, Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosures (1)

cc: Administrator, Region III, USNRC
Project Manager, PINGP, USNRC
Resident Inspector, PINGP, USNRC
State of Minnesota

ENCLOSURE

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NRC Request for Additional Information (RAI) 1:

Generic Letter (GL) 88-16 "Removal of Cycle-Specific Parameter Limits from Technical Specifications (TSs)" provides guidance for the preparation of a LAR to modify TS that have cycle-specific parameter limits. An acceptable alternative to specifying the values of cycle-specific parameter limits in TS consists: (1) the addition of the definition of a named formal report that includes the values of cycle-specific parameter limit that have been established using a Nuclear Regulatory Commission (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 further clarifies that in Core Operating Limits Report (COLR) TS [6.x.x] core operating limits shall be established and documented in the COLR before each reload cycle or any remaining part of a reload cycle. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by NRC.

Based on the GL 88-16 guidance, TS 5.6.5.b listed all approved methodologies to support all cycle-specific core operating parameters listed in TS 5.6.5.a. Therefore, both TS 5.6.5.a and 5.6.5.b in COLR TS establish a part of acceptable alternative stated in item (1) above. Please identify which plant- and cycle specific parameters listed in TS 5.6.5.a will be supported by the proposed methodologies listed in (1) 5.6.5.b.32 WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON" and (2) 5.6.5.b.33 WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology." Also, provide the date and version of the approved methodologies to be added to COLR TS 5.6.5.b.

NSPM Response:

The codes PARAGON and NEXUS are used in conjunction with ANC in the determination of almost all of the items listed in TS Table 5.6.5.a. PARAGON and NEXUS are used directly in the determination of the boron concentration limits for Limiting Condition for Operation (LCO) 3.9.1, "Boron Concentration". PARAGON and NEXUS are used indirectly in the determination of the parameters for all of the other TS listed in TS Table 5.6.5.a with the exception of LCO 3.1.5 "Shutdown Bank Insertion Limits" for which neither PARAGON nor NEXUS play any role in the determination of the limits.

Table 5.6.5.a	
TS 2.1.1	"Reactor Core SLs"
LCO 3.1.1	"SHUTDOWN MARGIN (SDM)"
LCO 3.1.3	Isothermal Temperature Coefficient (ITC)"
LCO 3.1.5	"Shutdown Bank Insertion Limits"
LCO 3.1.6	"Control Bank Insertion Limits"
LCO 3.1.8	"PHYSICS TESTS Exceptions - MODE 2"
LCO 3.2.1	"Heat Flux Hot Channel Factor (FQ(Z))"
LCO 3.2.2	"Nuclear Enthalpy Rise Hot Channel Factor (F_{DH}^N)"
LCO 3.2.3	"AXIAL FLUX DIFFERENCE (AFD)"
LCO 3.3.1	"Reactor Trip System (RTS) Instrumentation" Over-temperature ΔT and Overpower ΔT Parameter Values for Table 3.3.1-1
LCO 3.4.1	"RCS Pressure, Temperature, and Flow - Departure from Nucleate Boiling (DNB) Limits"
LCO 3.9.1	"Boron Concentration"

PINGP license amendments (LA) 162 and 153 (LA-162/153) issued April 28, 2004 (ML040900209), for Units 1 and 2 respectively, adopted the provisions of NUREG-1431, Revision 2, which revised the content requirements for COLR references. NUREG-1431, Revision 2, incorporated Technical Specifications Task Force (TSTF) industry traveler TSTF-363, "Revise Topical Report references in ITS 5.6.5, COLR", which removed the specific date and revision for topical report references and requires the reference details to be included in the COLR for references used to prepare the COLR.

By letter dated August 4, 2011, (ML110660285) the NRC informed the nuclear industry that LARs adopting TSTF-363 (and similar TSTFs 408 and 419) would no longer be

Add COLR Reference
RAI Responses

accepted and Revision 4 of improved Standard TS, including NUREG-1431, would be revised to include topical report specific date and revision information in the TS COLR reference list. However, the NRC August 4, 2011, letter (ML110660285) also stated:

The NRC staff does not intend to backfit licensees that have these travelers already in their TS. There is not a substantial increase in the overall protection of the public health and safety to be derived from backfitting licensees that have already adopted these travelers. A desire for additional clarity in the safety analysis is not indicative of an immediate safety concern. Therefore, backfitting would not be justified under Title 10 of the *Code of Federal Regulations* Section 50.109 because the safety benefit is not supported by the financial costs. As a result, these changes will not impact plants that already have TSTF-363, or previous versions of TSTF-408 or TSTF-419, approved and implemented in their plant-specific TS.

Since PINGP has TSTF-363 approved and implemented in its TS, NSPM does not propose to add the date and version of the approved methodologies to COLR TS 5.6.5.b. The PINGP COLR is consistent with the guidance of NUREG-1431, Revision 2, as allowed by NRC letter dated August 4, 2011 (ML110660285), and includes the complete identification for each of the TS referenced topical reports used to prepare the COLR, that is, report number, title, revision, date, and any supplements.

NRC RAI 2

NRC Generic Letter (GL) 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications," allows licensees to control certain reactor physics parameters on a cycle-by-cycle basis by moving them to a separate report, provided they specify the calculation methodology. The discussion in the GL makes reference to terms indicating that approval of licensee control of these parameters is contingent on selection of a single, specific methodology (e.g., "the specified methodology" and "an NRC-approved methodology," etc.).

The proposed amendment would preserve both the current PHOENIX-P/ANC nuclear design methodology and the new PARAGON-NEXUS/ANC nuclear design methodology in the licensee's TS. According to the submittal, this is due to the "unavoidable transition period when the current and proposed methodologies are both required to support core operating limits," since the two plants at the site have overlapping fuel cycles.

By leaving both the current and proposed methodologies in the TS without also specifying how the method will be chosen, the proposed amendment leaves open the possibility that either methodology could be used to calculate the core operating limits addressed in the COLR, effectively creating a new, ambiguous methodology. The NRC staff has therefore been unable to determine that the proposed amendment is consistent with GL 88-16 guidance. Please propose a revision to TS 5.6.5 that provides

Add COLR Reference
RAI Responses

for a single, unambiguous method to determine how the core operating limits discussed in the submittal will be calculated.

NSPM Response:

Attachment 1 to this Enclosure provides TS 5.6.5 pages marked up, as requested by this RAI, to desist use of COLR reference 23 when the additional references proposed in this LAR are adopted. Attachment 2 provides the retyped TS 5.6.5 pages with these changes.

ENCLOSURE, ATTACHMENT 1

Technical Specification Pages (Markup)

5.0-37

1 page follows

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

29. Caldon Engineering Report ER-157P, "Supplement to Topical Report ER-80P: Basis for a Power Uprate with the LEFM or LEFM CheckPlus System";
 30. WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report"; and
 31. WCAP-12610-P-A and CENPD-404-P-A, Addendum 1-A, "Optimized ZIRLOTM";
 32. Commencing Unit 1 Cycle 30 and Unit 2 Cycle 29, this reference shall be used in lieu of reference 23: WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON"; and
 33. Commencing Unit 1 Cycle 30 and Unit 2 Cycle 29, this reference shall be used in lieu of reference 23: WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology".
- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
 - d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

ENCLOSURE, ATTACHMENT 2

Technical Specification Pages (Retyped)

5.0-37

1 page follows

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

29. Caldon Engineering Report ER-157P, "Supplement to Topical Report ER-80P: Basis for a Power Uprate with the LEFM or LEFM CheckPlus System";
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