



Nebraska Public Power District

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NLS2008046

May 9, 2008

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Response to Request for Additional Information for License Amendment Request to Revise Technical Specifications - Appendix K Measurement Uncertainty Recapture Power Uprate
Cooper Nuclear Station, Docket No. 50-298, DPR-46

- References:**
- 1) Letter from Carl F. Lyon, U.S. Nuclear Regulatory Commission, to Stewart B. Minahan, Nebraska Public Power District, dated May 2, 2008, "Cooper Nuclear Station - Request for Additional Information RE: Measurement Uncertainty Recapture Power Uprate (TAC No. MD7385)"
 - 2) Letter from Stewart B. Minahan, Nebraska Public Power District, to the U.S. Nuclear Regulatory Commission, dated April 4, 2008, "Response to Request for Additional Information for License Amendment Request to Revise Technical Specifications - Appendix K Measurement Uncertainty Recapture Power Uprate"
 - 3) Letter from Stewart B. Minahan, Nebraska Public Power District, to the U.S. Nuclear Regulatory Commission, dated November 19, 2007, "License Amendment Request to Revise Technical Specifications - Appendix K Measurement Uncertainty Recapture Power Uprate"

Dear Sir or Madam:

The purpose of this letter is for the Nebraska Public Power District (NPPD) to submit its response to the Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) from the Instrumentation and Controls Branch (EICB), sent on May 2, 2008 (Reference 1). This RAI is related to the license amendment request (LAR) that would revise the Cooper Nuclear Station (CNS) Technical Specifications (TS) for Measurement Uncertainty Recapture power uprate. This LAR was submitted by NPPD letter dated November 19, 2007 (Reference 3), as updated by NPPD letter dated April 4, 2008 (Reference 2).

In response to Question 1 of the RAI (Reference 1), NPPD is withdrawing the revised TS pages submitted in its April 4, 2008 letter (Reference 2), thus reverting to the specific pages provided in the November 19, 2007 submittal (Reference 3).

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In response to Question 2 of the RAI (Reference 1), NPPD is resubmitting TS Page 3.3-6 for NRC consideration. The TS pages submitted November 19, 2007 (Reference 3) along with the resubmitted TS page included with this submittal incorporate all changes through Amendment 229.

Attachment 1 contains the response to the NRC EICB RAI questions from Reference 1.
Attachment 2 contains the markup and clean TS page in response to the RAI Question 2.
Attachment 3 contains a copy of the TS Bases pages that explain how setpoints are selected for information. These TS Bases pages are unaffected by the proposed changes to TS Page 3.3-6.

NPPD has determined that the specific TS page changes are editorial in nature in that the changes provide clarification and do not impose new requirements nor delete any requirements contained in the preceding submittals. NPPD has determined that the changes do not impact the Technical or Regulatory Safety Analysis, nor do they change the conclusion of the No Significant Hazards Consideration evaluation submitted in Reference 3.

Should you have any questions regarding this submittal, please contact David Van Der Kamp, Licensing Manager, at (402) 825-2904.

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

Executed on 9 May 2008

Sincerely,



Stewart B. Minahan
Vice President - Nuclear and
Chief Nuclear Officer

/dm

Attachments (3)

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Page 3 of 3

cc: Regional Administrator w/ attachments
USNRC - Region IV

Cooper Project Manager w/ attachments
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/ attachments
USNRC - CNS

Nebraska Health and Human Services w/ attachments
Department of Regulation and Licensure

NPG Distribution w/o attachments

CNS Records w/ attachments

Attachment 1

**Response to Instrumentation and Controls Branch
Request for Additional Information
Regarding License Amendment Request to Revise Technical Specifications for
Measurement Uncertainty Recapture Power Uprate**

Cooper Nuclear Station, Docket No. 50-298, DPR-46

The Nuclear Regulatory Commission (NRC) Request for Additional Information questions from the Instrumentation and Controls Branch are shown in italics. The Nebraska Public Power District (NPPD) responses are shown in block font.

1. NRC Request

Page 1 of Attachment 6 stated that the originally proposed 9.85% is incorrect, and you will revise the value to 9.84%. It seems that you calculated $10\%/1.016 = 9.8425\%$, and rounded off the value to 9.84%. Since the Rod Worth Minimizer (RWM) blocks erroneous operation of a control rod at low power, should the permissive setpoint be 9.85% instead of 9.84%, to be more conservative?

NPPD Response

The change to 9.84% was to be consistent with setpoint calculation NEDC 92-050R, Section 3.15. This conversion to the post-uprated power level value was only calculated to the second digit since the converted value is not what NPPD uses to calculate the permissive setpoint for the Rod Block Monitor (RBM). NPPD uses 10% of rated Feedwater and Main Steam flow at the originally licensed power level (2381 MWth) as the analytical limits for calculating the permissive setpoints (see NEDC 92-050R, Section 2.2) that ensure the RBM is not bypassed below 10% of originally Rated Thermal Power (RTP).

Since NPPD establishes the permissive setpoints based on 10% of originally licensed Feedwater and Main Steam flow, not the converted RTP value of 9.84%, rounding up to 9.85% has no affect on the setpoints. Per this letter, NPPD is withdrawing the proposed change contained in Attachment 7 of Reference 2, and reverting to using 9.85% in Technical Specifications (TS). This change back to the previously submitted value does not impact the Technical or Regulatory evaluation, nor does it impact the No Significant Hazards determination provided in the November 19, 2007 submittal.

2. NRC Request

In Attachment 1, you stated that the APRM Neutron Flux-High (Flow Biased) is a safety-limit-related limiting safety system setting, but that you would not use the guidance provided in the NRC to NEI letter dated September 7, 2005. The letter provided an acceptable means to the NRC staff of meeting the requirements of 10 CFR 50.36. If you will not use the guidance of the letter, you should provide another means acceptable to the staff, or the staff will be unable to determine that your proposed change meets the regulatory requirements.

NPPD Response

In NPPD's April 4, 2008 response, NPPD stated that the Technical Specification Task Force (TSTF) had proposed an approach, reflected in TSTF Traveler 493, Revision 3, that has generically addressed the issues related to setpoint allowable values discussed in the NRC letter to Nuclear Energy Institute (NEI) dated September 7, 2005. While this TSTF has not yet been approved by the NRC, NPPD is proposing the addition of two notes to Table 3.3.1.1-1, applicable to the Neutron Flux-High (Flow Biased) function of the Average Power Range Monitors, consistent with this TSTF. The addition of these notes represents an acceptable means of ensuring regulatory requirements are met.

TS Amendment 178 described the Cooper Nuclear Station setpoint methodology and the approach to implementing that methodology. This methodology and approach is conservative with respect to the approach described in TSTF 493, Revision 3. The Safety Evaluation Report for TS Amendment 178, received on July 31, 1998, in Section III.G.2 accepted that methodology and approach for implementation. Therefore, the footnote changes proposed only represent clarification. This clarification makes explicit how NPPD will manage the setpoints to ensure compliance with 10 CFR 50.36.

Attachment 2 contains both the markup and clean copy of the affected TS page (Page 3.3-6). NPPD has determined that the recommended TS Bases language provided in the NRC letter to NEI dated September 7, 2005 and TSTF Traveler 493, Revision 3 generally exists in the current TS Bases Pages B 3.3-3 and 3.3-4. These pages explain how setpoints are selected for the instrument channel Functions specified in TS Table 3.3.1.1-1. These pages have been provided for information in Attachment 3.

The subject changes are considered editorial in nature, and do not impact the Technical or Regulatory evaluation, nor do they impact the No Significant Hazards determination provided in the November 19, 2007 submittal.

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Attachment 2

Attachment 2

**Technical Specification Pages – Markup and Clean Format
Regarding License Amendment Request to Revise Technical Specifications for
Measurement Uncertainty Recapture Power Uprate**

Cooper Nuclear Station, Docket No. 50-298, DPR-46

Technical Specification Page

3.3-6

Table 3.3.1.1-1 (page 1 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Intermediate Range Monitors					
a. Neutron Flux — High	2	3	G	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.5 SR 3.3.1.1.6 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 121/125 divisions of full scale
	5(a)	3	H	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 121/125 divisions of full scale
b. Inop	2	3	G	SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.13	NA
	5(a)	3	H	SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.13	NA
2. Average Power Range Monitors					
a. Neutron Flux — High (Startup)	2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.6 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 14.5% RTP
	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.4 SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.10(c,d) SR 3.3.1.1.12(c,d) SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 0.75 $\leq 0.66 W$ $+ 71.5\%$ RTP(b) $+ 62.0$



(continued)

- (a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.
- (b) ~~0.66 W + 71.5% - 0.66 ΔW~~ RTP when reset for single loop operation per LCO 3.4.1, "Recirculation LOPS Operating."

(c) See Insert from next page.
(d) $0.75 W + 62.0\% - 0.75 \Delta W$

~~Amendment 491~~
Cooper

~~6/7/02~~
Amendment No.

Table 3.3.1.1-1 (page 1 of 3)
Footnote Insert Wording

The following footnotes are to be inserted at the bottom of Technical Specification Page 3.3-6.

- (c) If the as-found setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (d) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures to confirm the channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in station procedures implementing the GE Setpoint Methodology per NEDC-31336P-A approved in TS Amendment 178 SER, Section III.G.2.

Table 3.3.1.1-1 (page 1 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Intermediate Range Monitors					
a. Neutron Flux — High	2	3	G	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.5 SR 3.3.1.1.6 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 121/125 divisions of full scale
	5(a)	3	H	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.12 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 121/125 divisions of full scale
b. Inop	2	3	G	SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.13	NA
	5(a)	3	H	SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.13	NA
2. Average Power Range Monitors					
a. Neutron Flux — High (Startup)	2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.4 SR 3.3.1.1.6 SR 3.3.1.1.8 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 14.5% RTP
b. Neutron Flux-High (Flow Biased)	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.4 SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.10(c,d) SR 3.3.1.1.12(c,d) SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 0.75 W + 62.0% RTP ^(b)

(continued)

- (a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.
- (b) [0.75 W + 62.0% - 0.75 ΔW] RTP when reset for single loop operation per LCO 3.4.1, "Recirculation Loops Operating."
- (c) If the as-found setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
- (d) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures to confirm the channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in station procedures implementing the GE Setpoint Methodology per NEDC-31336P-A approved in TS Amendment 178 SER, Section III.G.2.

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Attachment 3

Attachment 3

**Technical Specification Bases Pages– For Information
Regarding License Amendment Request to Revise Technical Specifications for
Measurement Uncertainty Recapture Power Uprate**

Cooper Nuclear Station, Docket No. 50-298, DPR-46

Bases Pages

B 3.3-3

B 3.3-4

BASES (continued)

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY

The actions of the RPS are assumed in the safety analyses of References 1, 2, 3, and 4. The RPS is required to initiate a reactor scram when monitored parameter values exceed the Allowable Values, specified by the setpoint methodology and listed in Table 3.3.1.1-1 to preserve the integrity of the fuel cladding, the reactor coolant pressure boundary (RCPB), and the containment by minimizing the energy that must be absorbed following a LOCA.

RPS instrumentation satisfies Criterion 3 of 10 CFR 50.36 (c)(2)(ii) (Ref. 5). Functions not specifically credited in the accident analysis are retained for the overall redundancy and diversity of the RPS as required by the NRC approved licensing basis.

The OPERABILITY of the RPS is dependent on the OPERABILITY of the individual instrumentation channel Functions specified in Table 3.3.1.1-1. Each Function must have a required number of OPERABLE channels per RPS trip system, with their setpoints within the specified Allowable Value, where appropriate. The actual setpoint is calibrated consistent with applicable setpoint methodology assumptions. Each channel must also respond within its assumed response time, where appropriate.

Allowable Values are specified, as appropriate, for RPS Functions specified in the Table. Nominal trip setpoints are specified in the setpoint calculations. The setpoint calculations are performed using methodology described in NEDC-31336P-A, "General Electric Instrument Setpoint Methodology," dated September 1996. The nominal setpoints are selected to ensure that the actual setpoints do not exceed the Allowable Value between successive CHANNEL CALIBRATIONS. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable. A channel is inoperable if its actual trip setpoint is not within its required Allowable Value.

Trip setpoints are those predetermined values of output at which an action should take place. The setpoints are compared to the actual process parameter (e.g., reactor vessel water level), and when the measured output value of the process parameter exceeds the setpoint, the associated device changes state. The analytic limits are derived from

(continued)

BASES

APPLICABLE
SAFETY ANALYSES,
LCO, and
APPLICABILITY
(continued)

the limiting values of the process parameters obtained from the safety analysis or other appropriate documents. The Allowable Values are derived from the analytic limits, corrected for calibration, process, and some of the instrument errors. The trip setpoints are then determined accounting for the remaining instrument errors (e.g., drift). The trip setpoints derived in this manner provide adequate protection because instrumentation uncertainties, process effects, calibration tolerances, instrument drift, and severe environment errors (for channels that must function in harsh environments as defined by 10 CFR 50.49) are accounted for.

The OPERABILITY of scram pilot valves and associated solenoids, backup scram valves, and SDV valves, described in the Background section, are not addressed by this LCO.

The individual Functions are required to be OPERABLE in the MODES or other Conditions specified in the table, which may require an RPS trip to mitigate the consequences of a design basis accident or transient. To ensure a reliable scram function, a combination of Functions are required in each MODE to provide primary and diverse initiation signals.

The only MODES specified in Table 3.3.1.1-1 are MODES 1 and 2 and MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies. No RPS Function is required in MODES 3 and 4 since, all control rods are fully inserted and the Reactor Mode Switch Shutdown Position control rod withdrawal block (LCO 3.3.2.1) does not allow any control rod to be withdrawn. In MODE 5, control rods withdrawn from a core cell containing no fuel assemblies do not affect the reactivity of the core and, therefore, are not required to have the capability to scram. Provided all other control rods remain inserted, no RPS Function is required. In this condition, the required SDM (LCO 3.1.1) and refuel position one-rod-out interlock (LCO 3.9.2) ensure that no event requiring RPS will occur.

The trip that results from the removal of a circuit card is a basic design feature of selected circuits. This feature is excluded from periodic testing in order to minimize component wear and damage.

(continued)

ATTACHMENT 3 LIST OF REGULATORY COMMITMENTS©

ATTACHMENT 3 LIST OF REGULATORY COMMITMENTS©

Correspondence Number: NLS2008046

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITMENT NUMBER	COMMITTED DATE OR OUTAGE
None	N/A	N/A