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NLS2003077
August 25, 2003

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

Subject: License Amendment Request to Revise Technical Specification (TS) Surveillance Requirement (SR) 3.3.2.1.4 and TS Table 3.3.2.1-1 for mathematical symbols and use of Allowable Values.
Cooper Nuclear Station, Docket 50-298, DPR-46

The purpose of this letter is for the Nebraska Public Power District (NPPD) to request an amendment to Facility Operating License DPR-46 in accordance with the provisions of 10 CFR 50.4 and 10 CFR 50.90 to revise the Cooper Nuclear Station (CNS) Technical Specifications (TS). The proposed amendment will revise Technical Specification (TS) Surveillance Requirement (SR) 3.3.2.1.4 and TS Table 3.3.2.1-1 to correct the mathematical symbols, and substitute the Allowable Values for the Analytical Limits. The Allowable Values are based on calculations which account for setpoint margins and instrument calibration tolerances/deviations. The Analytical Limits are used as part of the calculations which derive the Allowable Values. Design documentation includes the application of rigorous and conservative setpoint methodologies. Therefore, the proposed TS change will facilitate use of the Allowable Values for a closer alignment to the Rod Block Monitor (RBM) nominal trip setpoints with consideration for instrument calibration tolerances/deviations, and correction of the mathematical symbol errors. The proposed TS change does not revise or invalidate any of the existing RBM Analytical Limits, Allowable Values or Trip Setpoints. During the ITS conversion (Amendment No.178) the NRC staff approved use of Allowable Values for SR requirements based on use of NRC approved General Electric setpoint methodology.

NPPD requests NRC approval of the proposed TS change and issue of the requested license amendment by April 30, 2004. Once approved, the amendment will be implemented within 60 days.

Attachment 1 provides a description of the TS change, the basis for the amendment, the no significant hazards consideration evaluation pursuant to 10 CFR 50.91(a)(1), and the environmental impact evaluation pursuant to 10 CFR 51.22. Attachment 2 provides the proposed changes to the current CNS TS and Bases (provided for information) on marked up pages. Attachment 3 provides the revised TS pages in final typed format.

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This proposed TS change has been reviewed by the necessary safety review committees (Station Operations Review Committee and Safety Review and Audit Board). Amendments to the CNS Facility Operating License through Amendment No. 200 issued July 15, 2003, have been incorporated into this request. NPPD has concluded that the proposed change does not involve a significant hazards consideration and that it satisfies the categorical exclusion criterion of 10 CFR 51.22(c)(9). This request is submitted under oath pursuant to 10 CFR 50.30(b).

By copy of this letter and its attachments, the appropriate State of Nebraska official is notified in accordance with 10 CFR 50.91(b)(1). Copies to the NRC Region IV office and the CNS Resident Inspector are also being provided in accordance with 10 CFR 50.4(b)(1).

Should you have any questions concerning this matter, please contact Mr. Paul Fleming at (402) 825-2774.

Sincerely,

Clay C. Warren
Vice President - Nuclear and
Chief Nuclear Officer

/clb

Attachments

cc: Regional Administrator w/ attachments
USNRC - Region IV

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

Senior Resident Inspector w/ attachments
USNRC

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

NPG Distribution w/o attachments

Records w/ attachments

Affidavit

STATE OF NEBRASKA)
)
NEMAHA COUNTY)

Clay C. Warren, being first duly sworn, deposes and says that he is an authorized representative of the Nebraska Public Power District, a public corporation and political subdivision of the State of Nebraska; that he is duly authorized to submit this correspondence on behalf of Nebraska Public Power District; and that the statements contained herein are true to the best of his knowledge and belief.

Clay C. Warren

Clay C. Warren

Subscribed in my presence and sworn to before me this 25th day of August, 2003.

LuAnn Bray

NOTARY PUBLIC

GENERAL NOTARY - State of Nebraska
LUANN BRAY
My Comm. Exp. May 11, 2006

NPPD's Evaluation

1.0 Introduction

2.0 Description of Proposed Amendment

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4.0 Technical Analysis

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- **5.1 No Significant Hazards Consideration (NSHC)**
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LICENSE AMENDMENT REQUEST TO REVISE TECHNICAL SPECIFICATION (TS) SURVEILLANCE REQUIREMENT (SR) 3.3.2.1.4 AND TS TABLE 3.3.2.1-1 FOR MATHEMATICAL SYMBOLS AND USE OF ALLOWABLE VALUES.

Cooper Nuclear Station, NRC Docket 50-298, DPR-46

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1.0 Introduction

This letter is a request to amend Operating License DPR-46 for Cooper Nuclear Station (CNS).

The Rod Block Monitor (RBM) subsystem automatically detects and blocks control rod withdrawal during a single rod withdrawal transient. The RBM also provides a signal to permit operator evaluation of the change in local relative power during control rod movement. The actual trip setpoints are determined from the Analytical Limits such that the changing from the Low Power Setpoint (LPSP) to the Intermediate Power Setpoint (IPSP) to the High Power Setpoint (HPSP) does not invalidate the Analytical Limits.

The current Technical Specification (TS) Surveillance Requirement (SR) 3.3.2.1.4 and TS Table 3.3.2.1-1 contains mathematical symbol errors. Due to the symbol errors the current TS SR and TS Table do not require the IPSP upscale trip to be in effect at the Analytical Limit, that is, the TS allows the Low Power Upscale trip to be in effect when rated power (RTP) is 65%, while the IPSP Analytical Limit requires the Intermediate Power upscale trip to be in effect at 65% RTP. In addition, the TS SR and TS Table do not require the HPSP upscale trip to be in effect at the Analytical Limit, that is, the TS allows the Intermediate Power Upscale trip to be in effect when RTP is 85%, while the HPSP Analytical Limit requires the High Power Upscale trip to be in effect at 85% RTP. This proposed TS change will correct the symbol error and incorporate use of the Allowable Values in place of the Analytical Limits. The Allowable Values are based on calculations which account for setpoint margins and instrument calibration tolerances/deviations. The Analytical Limits are used as part of the calculations from which the Allowable Values are calculated.

2.0 Description of Proposed Amendment

This proposed change will revise TS SR 3.3.2.1.4 and TS Table 3.3.2.1-1 mathematical symbols to clarify the point at which the RBM LPSP, IPSP, and HPSP upscale trips are in

effect. Currently TS SR 3.3.2.1.4 and notes (a), (b), and (c) from Table 3.3.2.1-1 identify the power ranges applicable to Low Power Range, Intermediate Range, and High Power upscale trips. The associated power ranges are $\geq$ 30% and $\leq$ 65%, > 65% and $\leq$ 85%, and > 85% respectively. The proposed change will modify the mathematical symbols and ranges as follows: $\geq$ 27.5 % and < 62.5% for the low power range, $\geq$ 62.5% and < 82.5% for the intermediate power range, and $\geq$ 82.5% for the high power range.

Following approval of the proposed TS change the TS Bases for SR 3.3.2.1.4 and Rod Block Monitor TS 3.3.2.1 will be revised as applicable.

3.0 Background

The RBM power range setpoints control the enforcement of the appropriate upscale trips over the proper core thermal power range of the Applicability Notes (a), (b), (c), (d), and (e) of Technical Specification table 3.3.2.1-1. The RBM Upscale Trip Function setpoints are automatically varied as a function of power.

The setpoint calculations are performed using the methodology described in NEDC - 31336P-A "General Electric Instrument Setpoint Methodology, " dated September 1996. The nominal setpoints are selected to ensure that the setpoints do not exceed the Allowable Values between successive channel calibrations

The Allowable Values are derived from the analytical limits, corrected for calibration process, and 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 mathematical symbol errors were identified during the Design Basis Information/Licensing Basis Information Translation Project associated with Atlas Software Project's input assumptions. The symbol errors cause the IPSP upscale trip to be in effect at the Analytical Limit, and does not require the HPSP upscale to be in effect at the Analytical Limit. That is the current TS allows the Low Power Upscale trip to be in effect when RTP is 65%, while the IPSP Analytical Limit requires the Intermediate Power Upscale trip to be in effect at 65% RTP, and the TS allows the Intermediate Power Upscale trip to be in effect when RTP is 85% while the HPSP Analytical Limit requires the High Power Upscale to be in effect at 85% RTP.

The proposed change to the CNS TS corrects the mathematical symbols for the RBM LPSP, IPSP, and the HPSP to clarify the power ranges at which the RBM upscale trips are in effect, and incorporates the use of Allowable Values in the place of Analytical Limits.

In a previous submittal to the NRC (March 27,1997, NLS970002) it was identified that the setpoint calculations at CNS are performed in accordance with engineering procedure 3.26.3, which is based upon NEDC-31336. The GE instrument setpoint methodology was approved by the staff in its Safety Evaluation dated February 9, 1993. The methodology conforms to the guidelines of Nuclear Regulatory Commission Regulatory Guide 1.105, Revision 2, "Instrument Setpoints for Safety-Related Systems" and ANSI/ISA-S67.04-1982, "Setpoints for Nuclear Safety-Related Instrumentation Used in Nuclear Plants."

4.0 Technical Analysis

The analytical limits for the RBM are not affected by the proposed TS change. The proposed change to the mathematical symbol configuration will provide for an accurate clear separation of power range upscale trip functions and alignment with the Allowable Values for the power ranges at which the RBM upscale trips are in effect. The proposed revision provides for the LPSP to be in effect from $\geq$27.5% RTP to <62.5%, the IPSP to be in effect from $\geq$62.5% to <82.5%, and the HPSP to be in effect from $\geq$82.5% with no peripheral control rod selected. The Allowable Values are based on calculations which account for setpoint margins and instrument calibration tolerances/deviations.

The setpoint calculations at CNS are performed in accordance with engineering procedure 3.26.3, which is based upon NEDC-31336. The Allowable Values have been established from each design or safety analysis limit by combining the errors associated with channel and instrumentation calibration (e.g., device accuracy, calibration tolerance, process and primary element measurement accuracy, drift) with the calculated Nominal Trip Setpoint using CNS Instrument Setpoint methodology. As a result, the Allowable Values ensure that the design basis and associated safety limits will not be exceeded during plant operation. The Analytical Limits are used as part of the calculations which derive the Allowable Values. Design documentation includes the application of rigorous and conservative setpoint methodologies. The proposed TS change does not modify the existing Analytical Limits, Allowable Values or trip setpoints.

Therefore, the proposed TS change will facilitate use of the Allowable Values and revised mathematical symbol configuration for a clear separation at which the LPSP, IPSP, and HPSP upscale trips are in effect. In addition, the change will provide a closer alignment to the RBM nominal trip setpoints with consideration for instrument calibration tolerances/deviations.

A similar TS change (Amendment No. 213, dated September 3, 1998) was approved by the NRC staff for Browns Ferry Unit 3 for the same RBM SR requirement in that Allowable Values were used as the operability requirements.

A similar TS change (Amendments No.195 and 135 respectively, dated March 3,1995) was also approved by the NRC staff for Hatch Units 1 and 2 during their Improved

Technical Specification (ITS) conversion amendment. This amendment introduced SR requirement 3.3.2.1.4 for the RBM using Allowable Limits for the operability requirements and the same symbol configuration as being requested in this TS submittal. In addition, in the Safety Evaluation for the Cooper Station ITS conversion (Amendment No. 178, dated July 31, 1998) the NRC approved use of Allowable Values for SR requirements.

5.0 Regulatory Analysis

5.1 No Significant Hazards Consideration

10 CFR 50.91(a)(1) requires that licensee requests for operating license amendments be accompanied by an evaluation of significant hazard posed by issuance of an amendment. Nebraska Public Power District (NPPD) has evaluated this proposed amendment with respect to the criteria given in 10 CFR 50.92 (c).

The proposed change to the Cooper Nuclear Station (CNS) Technical Specifications (TS) corrects the mathematical symbols for the Rod Block Monitor (RBM) Low Power Setpoint (LPSP), Intermediate Power Setpoint (IPSP), and the High Power Setpoint (HPSP) to clarify the power ranges at which the RBM upscale trips are in affect. In addition, the change incorporates the use of Allowable Values in the place of Analytical Limits. The proposed TS change does not change or invalidate any RBM Analytical Limits, Allowable Values or Trip Setpoints. In addition the setpoint methodology used to calculate the limits, setpoints and values remains unchanged.

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

The proposed change to the Cooper Nuclear Station (CNS) Technical Specifications (TS) corrects the mathematical symbols for the RBM LPSP, IPSP, and the HPSP to clarify the power ranges at which the RBM upscale trips are in affect. In addition, the change incorporates the use of Allowable Values in the place of Analytical Limits. Calculation NEC 98-024 Rev. 3, which documents the Analytical Limits and calculates the Allowable Values for the Rod Block Monitor Low Power set point, the Intermediate Power set point and the high-power set point have not been altered. The calculation results implemented in procedures 6.1/2RBM.302 remain unchanged. The proposed TS change does not change or invalidate the Analytical Limits.

Based on the above, NPPD concludes that the proposed TS change to modify the mathematical symbols in TS SR 3.3.2.1.4 and TS Table 3.3.2.1-1 footnotes (a),

(b), (c), and (e) does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change to the Cooper Nuclear Station (CNS) Technical Specifications (TS) corrects the mathematical symbols for the RBM LPSP, IPSP, and the HPSP to clarify the power ranges at which the RBM upscale trips are in affect. In addition, the change incorporates the use of Allowable Values in the place of Analytical Limits. The values for the RBM trip setpoints, Analytical Limits, and Allowable Values are not being altered in any way.

Based on the above, NPPD concludes that the proposed TS change to modify the mathematical symbols in TS SR 3.3.2.1.4 and TS Table 3.3.2.1-1 footnotes (a), (b), (c), and (e) does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. **Do the proposed changes involve a significant reduction in the margin of safety?**

The proposed change to the Cooper Nuclear Station (CNS) Technical Specifications (TS) corrects the mathematical symbols for the RBM LPSP, IPSP, and the HPSP to clarify the power ranges at which the RBM upscale trips are in affect. In addition, the change incorporates the use of Allowable Values in the place of Analytical Limits. This TS change does not change any Analytical Limits or Allowable Value calculations. The methodology by which the RBM Trip Setpoints, Analytical Limits, and Allowable Values are derived has not changed.

Based on the above NPPD concludes that the proposed TS change to modify the mathematical symbols in TS SR 3.3.2.1.4 and TS Table 3.3.2.1-1 footnotes (a), (b), (c), and (e) does not involve a significant reduction in the margin of safety.

Conclusion:
In conclusion, NPPD has determined that the proposed amendment involves 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 Regulatory Requirements and Guidance

The Rod Block Monitor (RBM) system is designed to assist the operator in preventing local fuel damage as a result of a single rod withdrawal error under the worst permitted condition of RBM bypass. In addition, the RBM system provides a signal to permit operator evaluation of the change in the local relative power

level during control rod movement. An automatic bypass of the RBM rod block occurs whenever the power level is below a preselected level or whenever a peripheral control rod is selected. The Rod block function is automatically bypassed when reactor power increases above a preselected value in the power range. It may be manually bypassed for maintenance at any time.

The proposed change to the Cooper Nuclear Station Technical Specification corrects the mathematical symbols for the RBM Low Power Setpoint (LPSP), Intermediate Power Setpoint (IPSP), and the High Power Setpoint (HPSP) to clarify the power ranges at which the RBM upscale trips are in affect, and incorporates the use of Allowable Values in the place of Analytical Limits. In the Safety Evaluation for TS amendment 178 the NRC staff stated, "the staff concludes that the proposed ITS trip setpoints and allowable values are intended to maintain acceptable margins between operating conditions and trip setpoints, and do not significantly increase the likelehood of a false trip nor failure to trip on demand." and, "the staff concludes that the licensee's setpoint methodology using NEDC-31336, and resulting trip setpoints, allowable values, and surveillance interval incorporated in ITS 3.3 as part of the ITS conversion are consistent with the CNS licensing basis, and are, therefore, acceptable." The Allowable Values and trip setpoints associated with this TS amendment submittal, as with the ITS conversion values, were developed in accordance with engineering procedure 3.26.3, which is based upon NEDC-31336 methodology.

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.

6.0 Environmental Consideration

10 CFR 51.22(b) allows that an environmental assessment (EA) or an environmental impact statement (EIS) is not required for any action included in the list of categorical exclusions in 10 CFR 51.22(c). 10 CFR 51.22(c)(9) identifies an amendment to an operating license which changes a requirement with respect to installation or use of a facility component located within the restricted area, or which changes an inspection or a surveillance requirement, as a categorical exclusion if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration, (2) result in a significant change in the types or significant increase in the amount of any effluents that may be released off-site, or (3) result in an increase in individual or cumulative occupational radiation exposure.

Nebraska Public Power District (NPPD) has reviewed the proposed license amendment and concludes that it meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(c), no environmental impact statement or environmental assessment needs to be prepared in connection with issuance of the proposed license changes. The basis for this determination is as follows:

1. The proposed license amendment does not involve significant hazards as described previously in the No Significant Hazards Consideration Evaluation.

2. This proposed change does not result in a significant change in the types or significant increase in the amounts of any effluents that may be released off-site. The proposed license amendment does not introduce any new equipment, nor does it require any existing equipment or systems to perform a different type of function than they are presently designed to perform. NPPD has concluded that there will not be a significant increase in the types or amounts of any effluents that may be released off-site and these changes do not involve irreversible environmental consequences beyond those already associated with normal operation.

3. This change does not adversely affect plant systems or operation and therefore, does not significantly increase individual or cumulative occupational radiation exposure beyond that already associated with normal operation.

7.0 References

1. Letter from NRC to G.R. Horn dated July 31, 1998. Subject : Conversion to Improved Technical Specification for the Cooper Nuclear Station - Amendment No. 178 to Facility Operating License No. DPR-46 (TAC NO. M98317)

2. Calculation 98-024, "APRM - RBM Setpoint Calculation.

3. USAR VII - Control and Instrumentation

ATTACHMENT 2

PROPOSED TECHNICAL SPECIFICATIONS AND ASSOCIATED BASES REVISIONS MARKUP FORMAT

COOPER NUCLEAR STATION NRC DOCKET 50-298, LICENSE DPR-46

Listing of Revised Pages

TS Pages
3.3-17
3.3-19

TS Bases Pages
B 3.3-45
B 3.3-51

Note: Bases are provided for information. Following approval of the proposed TS change, Bases changes will be revised as applicable.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.2	----------NOTE---------- Not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.3	----------NOTE---------- Not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. ---------- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.4	----------NOTE---------- Neutron detectors are excluded. ---------- Verify the RBM: a. Low Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 30% and ≤ 65% RTP and a peripheral control rod is not selected. b. Intermediate Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 65% and ≤ 85% RTP and a peripheral control rod is not selected. c. High Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 85% RTP and a peripheral control rod is not selected.	184 days

(continued)

Table 3.3.2.1-1 (page 1 of 1)
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Rod Block Monitor				
a. Low Power Range —Upscale	(a)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5	(h)
b. Intermediate Power Range —Upscale	(b)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5	(h)
c. High Power Range —Upscale	(c),(d)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5	(h)
d. Inop	(d),(e)	2	SR 3.3.2.1.1	NA
e. Downscale	(d),(e)	2	SR 3.3.2.1.1 SR 3.3.2.1.5	≥ 92 /125 divisions of full scale
2. Rod Worth Minimizer	1(f),2(f)	1	SR 3.3.2.1.2 SR 3.3.2.1.3 SR 3.3.2.1.6 SR 3.3.2.1.8	NA
3. Reactor Mode Switch —Shutdown Position	(g)	2	SR 3.3.2.1.7	NA

(a) THERMAL POWER ≥ 27.5% and < 62.5% RTP and MCPR < 1.70 and no peripheral control rod selected.

(b) THERMAL POWER ≥ 62.5% and < 82.5% RTP and MCPR < 1.70 and no peripheral control rod selected.

(c) THERMAL POWER ≥ 82.5% and < 90% RTP and MCPR < 1.70 and no peripheral control rod selected.

(d) THERMAL POWER ≥ 90% RTP and MCPR < 1.40 and no peripheral control rod selected.

(e) THERMAL POWER ≥ 27.5% and < 90% RTP and MCPR < 1.70 and no peripheral control rod selected.

(f) With THERMAL POWER ≤ 27.5% RTP.

(g) Reactor mode switch in the shutdown position.

(h) Less than or equal to the Allowable Value specified in the COLR.

≥ 62.5 % and < 82.5 %

BASES

APPLICABLE SAFETY ANALYSES LCO, and APPLICABILITY

1. Rod Block Monitor (continued)

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 setpoints do not exceed the Allowable Values between successive CHANNEL CALIBRATIONS. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable. 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 power), and when the measured output value of the process parameter exceeds the setpoint, the associated device changes state. The analytic limits are derived from the limiting values of the process parameters obtained from the safety analysis. 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.

27.5%

The RBM is assumed to mitigate the consequences of an RWE event when operating $\geq$ [redacted] RTP and a peripheral control rod is not selected. Below this power level or if a peripheral control rod is selected, the consequences of an RWE event will not exceed the MCPR SL and, therefore, the RBM is not required to be OPERABLE (Ref. 3). When operating < 90% RTP, analyses (Ref. 3) have shown that with an initial MCPR $\geq$ 1.70, no RWE event will result in exceeding the MCPR SL. Also, the analyses demonstrate that when operating at $\geq$ 90% RTP with MCPR $\geq$ 1.40, no RWE event will result in exceeding the MCPR SL (Ref. 3). Therefore, under these conditions, the RBM is also not required to be OPERABLE.

2. Rod Worth Minimizer

The RWM enforces the banked position withdrawal sequence (BPWS) to ensure that the initial conditions of the CRDA

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

sequence and verifying a control rod block occurs. For SR 3.3.2.1.2, the CHANNEL FUNCTIONAL TEST also includes attempting to select a control rod not in compliance with the prescribed sequence and verifying a selection error occurs. As noted in the SRs, SR 3.3.2.1.2 is not required to be performed until 1 hour after any control rod is withdrawn in MODE 2. As noted, SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is $\leq$ 10% RTP in MODE 1. This allows entry into MODE 2 for SR 3.3.2.1.2, and entry into MODE 1 when THERMAL POWER is $\leq$ 10% RTP for SR 3.3.2.1.3, to perform the required Surveillance if the 92 day Frequency is not met per SR 3.0.2. The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs. The Frequencies are based on reliability analysis (Ref. 9).

SR 3.3.2.1.4

The RBM power range setpoints control the enforcement of the appropriate upscale trips over the proper core thermal power range of the Applicability Notes (a), (b), (c), (d), and (e) of ITS Table 3.3.2.1-1. The RBM Upscale Trip Function setpoints are automatically varied as a function of power. Three Allowable Values are specified in the COLR as denoted in Table 3.3.2.1-1, each within a specific power range. The power at which the control rod block Allowable Values automatically change are based on the reference APRM signal's input to each RBM channel. Below the minimum power setpoint of [redacted] RTP or when a peripheral control rod is selected, the RBM is automatically bypassed. These power Allowable Values must be verified periodically by determining that the power level setpoints are less than or equal to the specified values. If any power range setpoint is nonconservative, then the affected RBM channel is considered inoperable. Alternatively, the power range channel can be placed in the conservative condition (i.e., enabling the proper RBM setpoint). If placed in this condition, the SR is met and the RBM channel is not considered inoperable. As noted, neutron detectors are excluded from the Surveillance because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Neutron detectors are adequately tested in SR 3.3.1.1.2 and SR 3.3.1.1.8. The 184 day Frequency is based on the actual trip setpoint methodology utilized for these channels.

27.5 %

ATTACHMENT 3

PROPOSED TECHNICAL SPECIFICATIONS AND ASSOCIATED BASES REVISIONS FINAL TYPED FORMAT

COOPER NUCLEAR STATION NRC DOCKET 50-298, LICENSE DPR-46

Listing of Revised Pages

TS Pages
3.3-17
3.3-19

TS Bases Pages
B 3.3-45
B 3.3-51

Note: Bases are provided for information. Following approval of the proposed TS change, Bases changes will be revised as applicable.

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1.2	----------NOTE---------- Not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.3	----------NOTE---------- Not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. ---------- Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.1.4	----------NOTE---------- Neutron detectors are excluded. ---------- Verify the RBM: a. Low Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 27.5% and < 62.5% RTP and a peripheral control rod is not selected. b. Intermediate Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 62.5% and < 82.5% RTP and a peripheral control rod is not selected. c. High Power Range — Upscale Function is not bypassed when THERMAL POWER is ≥ 82.5% RTP and a peripheral control rod is not selected.	184 days

(continued)

Table 3.3.2.1-1 (page 1 of 1)
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Rod Block Monitor				
a. Low Power Range — Upscale	(a)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5	(h)
b. Intermediate Power Range — Upscale	(b)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5	(h)
c. High Power Range — Upscale	(c),(d)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.5	(h)
d. Inop	(d),(e)	2	SR 3.3.2.1.1	NA
e. Downscale	(d),(e)	2	SR 3.3.2.1.1 SR 3.3.2.1.5	$\geq$ 92/125 divisions of full scale
2. Rod Worth Minimizer	1[(f)],2[(f)]	1	SR 3.3.2.1.2 SR 3.3.2.1.3 SR 3.3.2.1.6 SR 3.3.2.1.8	NA
3. Reactor Mode Switch — Shutdown Position	(g)	2	SR 3.3.2.1.7	NA

(a) THERMAL POWER $\geq$ 27.5% and < 62.5% RTP and MCPR < 1.70 and no peripheral control rod selected.

(b) THERMAL POWER $\geq$ 62.5% and < 82.5% RTP and MCPR < 1.70 and no peripheral control rod selected.

(c) THERMAL POWER $\geq$ 82.5% and < 90% RTP and MCPR < 1.70 and no peripheral control rod selected.

(d) THERMAL POWER $\geq$ 90% RTP and MCPR < 1.40 and no peripheral control rod selected.

(e) THERMAL POWER $\geq$ 27.5% and < 90% RTP and MCPR < 1.70 and no peripheral control rod selected.

(f) With THERMAL POWER $\leq$ 10% RTP.

(g) Reactor mode switch in the shutdown position.

(h) Less than or equal to the Allowable Value specified in the COLR.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. Rod Block Monitor (continued)

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 setpoints do not exceed the Allowable Values between successive CHANNEL CALIBRATIONS. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable. 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 power), and when the measured output value of the process parameter exceeds the setpoint, the associated device changes state. The analytic limits are derived from the limiting values of the process parameters obtained from the safety analysis. 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 RBM is assumed to mitigate the consequences of an RWE event when operating $\geq$ 27.5% RTP and a peripheral control rod is not selected. Below this power level or if a peripheral control rod is selected, the consequences of an RWE event will not exceed the MCPR SL and, therefore, the RBM is not required to be OPERABLE (Ref. 3). When operating < 90% RTP, analyses (Ref. 3) have shown that with an initial MCPR $\geq$ 1.70, no RWE event will result in exceeding the MCPR SL. Also, the analyses demonstrate that when operating at $\geq$ 90% RTP with MCPR $\geq$ 1.40, no RWE event will result in exceeding the MCPR SL (Ref. 3). Therefore, under these conditions, the RBM is also not required to be OPERABLE.

2. Rod Worth Minimizer

The RWM enforces the banked position withdrawal sequence (BPWS) to ensure that the initial conditions of the CRDA

BASES

SURVEILLANCE REQUIREMENTS (continued)

sequence and verifying a control rod block occurs. For SR 3.3.2.1.2, the CHANNEL FUNCTIONAL TEST also includes attempting to select a control rod not in compliance with the prescribed sequence and verifying a selection error occurs. As noted in the SRs, SR 3.3.2.1.2 is not required to be performed until 1 hour after any control rod is withdrawn in MODE 2. As noted, SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is $\leq$ 10% RTP in MODE 1. This allows entry into MODE 2 for SR 3.3.2.1.2, and entry into MODE 1 when THERMAL POWER is $\leq$ 10% RTP for SR 3.3.2.1.3, to perform the required Surveillance if the 92 day Frequency is not met per SR 3.0.2. The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs. The Frequencies are based on reliability analysis (Ref. 9).

SR 3.3.2.1.4

The RBM power range setpoints control the enforcement of the appropriate upscale trips over the proper core thermal power range of the Applicability Notes (a), (b), (c), (d), and (e) of ITS Table 3.3.2.1-1. The RBM Upscale Trip Function setpoints are automatically varied as a function of power. Three Allowable Values are specified in the COLR as denoted in Table 3.3.2.1-1, each within a specific power range. The power at which the control rod block Allowable Values automatically change are based on the reference APRM signal's input to each RBM channel. Below the minimum power setpoint of 27.5% RTP or when a peripheral control rod is selected, the RBM is automatically bypassed. These power Allowable Values must be verified periodically by determining that the power level setpoints are less than or equal to the specified values. If any power range setpoint is nonconservative, then the affected RBM channel is considered inoperable. Alternatively, the power range channel can be placed in the conservative condition (i.e., enabling the proper RBM setpoint). If placed in this condition, the SR is met and the RBM channel is not considered inoperable. As noted, neutron detectors are excluded from the Surveillance because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Neutron detectors are adequately tested in SR 3.3.1.1.2 and SR 3.3.1.1.8. The 184 day Frequency is based on the actual trip setpoint methodology utilized for these channels.

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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 & Regulatory Affairs Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITTED DATE OR OUTAGE
None	