



## Nebraska Public Power District

GENERAL OFFICE  
P.O. BOX 496, COLUMBUS, NEBRASKA 68602-0496  
TELEPHONE (402) 564-8561  
FAX (402) 563-5551

NLS9100109  
April 25, 1991

Attention: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Subject: Proposed Change No. 79 to Technical Specifications  
Reactor in Water Level 3 Setpoint  
Cooper Nuclear Station  
NRC Docket No. 50-298, License No. DPR-46

Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Parts 50.90 and 2.101, Nebraska Public Power District (District) hereby requests that the Technical Specifications for Cooper Nuclear Station (CNS) be revised as specified in Attachment 1. The requested change reduces the low reactor water level scram setpoint (Level 3) by eight inches to reduce the possibility of unnecessary primary containment isolations. These isolations are challenges to engineered safety features that result from the shrink in reactor water level during low power level manual scrams such as planned normal reactor shutdowns. Lowering the Level 3 setpoint will also provide the added benefit of reducing the risk of unnecessary reactor scrams on inadvertent low water level transients.

To accomplish the proposed reduction in the Level 3 setpoint, changes are required to Specification 2.1.A.2, Figure 2.1.1, and Tables 3.1.1, 3.2.A, and 3.2.B, and to their applicable Bases sections.

In addition to the change in the Level 3 setpoint, miscellaneous administrative changes are proposed to clarify other instrument settings.

Attachment 1 contains a detailed description of the proposed change and its basis, the attendant 10 CFR 50.92 evaluation, and the CNS Technical Specifications pages revised by the institution of this change. This proposed change has been reviewed by the necessary Safety Review Committees and incorporates all amendments to the CNS Facility Operating License through Amendment 137 issued March 7, 1991.

Please note that the information contained in Attachment 2 is of the type that General Electric maintains in confidence and withholds from public disclosure. It has been handled and classified as proprietary to General Electric as indicated in the affidavit in Attachment 3. We hereby request that this information be withheld from public disclosure in accordance with the provisions of 10 CFR 2.790.

9105030218 910425  
PDR ADOCK 05000298  
P PDR

*APC! Change No. 79 Ar Encl 1 w/ant Prop*  
*1/57*

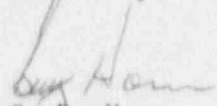
U.S. Nuclear Regulatory Commission  
Page 2 of 3  
April 25, 1991

The District plans to implement the reduction in the Level 3 setpoint during the upcoming Reload 14, Cycle 15 refueling outage, which is scheduled to commence in October 1991. Therefore, the District requests NRC approval of Proposed Change No. 79 in time to support the planned outage schedule. The District will coordinate this schedule with the NRC Project Manager.

In addition to the signed original, 37 copies are also submitted for your use. By copy of this letter and attachment the appropriate State of Nebraska official is being 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)(2).

Should you have any questions or require any additional information regarding this submittal, please contact me.

Sincerely,



G. R. Horn  
Nuclear Power Group Manager

GRH/mad:dls  
Attachment

cc: H. R. Borchert  
Department of Health  
State of Nebraska

Regional Administrator  
USNRC-Region IV

NRC Resident Inspector  
Cooper Nuclear Station

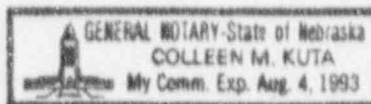
STATE OF NEBRASKA)  
PLATTE COUNTY )

G. R. Horn, 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 request on behalf of Nebraska Public Power District; and that the statements contained herein are true to the best of his knowledge and belief.

G. R. Horn  
G. R. Horn

Subscribed in my presence and sworn to before me this 25th day of April, 1991.

Colman M Kuta  
NOTARY PUBLIC



COOPER NUCLEAR STATION  
TECHNICAL SPECIFICATIONS PROPOSED CHANGE NO. 79  
REDUCTION IN REACTOR WATER LEVEL 3 SETPOINT

Revised Pages

8	52a
10	56
20	59
28	83
50	

1.0. Introduction.

The Nebraska Public Power District (District) requests that the NRC approve the proposed changes to the CNS Technical Specifications to reduce the low reactor water scram (Level 3) setpoint from 12.5 inches to 4.5 inches. To implement the reduction in the Level 3 setpoint, changes must be made to Specification 2.1.A.2 and its Bases section, Figure 2.1.1, Table 3.1.1, Table 3.2.A, and Table 3.2.B and its Bases section. Miscellaneous administrative changes are also proposed for the instrumentation settings on these tables.

2.0. Basis for Change.

- 2.1. The reactor low water level instrumentation is used to initiate a reactor scram and Primary Containment Isolation System (PCIS) Groups 2, 3, and 6 isolations above the Level 3 setpoint. The District has found that, following low power level manual scrams during planned normal plant shutdowns, the drop in reactor water level ("shrink") which occurs immediately following the manual scram will cause the level to reach Level 3 and results in PCIS Group 2, 3, and 6 isolations. (A listing of the valves closed by these PCIS isolation signals can be found in Table 1-2 of Attachment 2.) These isolations are undesirable in that they are unnecessary challenges to an engineered safety feature and may distract the operator and potentially interfere with the plant shutdown evolution. It would therefore be beneficial to prevent these unnecessary isolations from occurring.

An evaluation by the District of these isolations indicates that these PCIS isolations could be prevented if, prior to initiating the manual scram, reactor water level is raised by fifteen inches above the normal level and the Level 3 setpoint is lowered by eight inches. As discussed in Attachment 2, General Electric performed an analysis which supports the raising of the reactor water level just prior to the manual scram, and this action was incorporated into the CNS normal shutdown from power operating procedure. The proposed Technical Specifications change will lower the Level 3 setpoint by eight inches from 12.5 inches to 4.5 inches and, when combined with the procedural changes, should reduce the probability of unnecessary PCIS isolations immediately following normal shutdown scrams.

- 2.2. At the request of the District, General Electric performed an analysis of the impact of the reduction in the Level 3 setpoint. The Attachment 2 analysis examined the affects of the setpoint change upon plant abnormal operational transients, loss of coolant accident events, and anticipated transient without scram events. The results of each event were reviewed against criteria consisting of unacceptable safety results, which are also listed in Attachment 2. The change to the Level 3 setpoint was evaluated as acceptable since the unacceptable safety results were avoided during the analyzed events. The operation of the Automatic Depressurization System (ADS), which receives a permissive signal at the Level 3 setpoint, was also found to be unaffected by the proposed setpoint change. The Attachment 2 analysis determined that the reduction in the Level 3 setpoint would not adversely affect the public health and safety, and does not involve any significant safety hazards.
- 2.3 Following NRC approval of the proposed Technical Specifications change, the District plans to implement the change to the Level 3 setpoint during the Reload 14, Cycle 15 refueling outage, which is scheduled to start in October 1991. This schedule provides sufficient time for completing revisions to CNS operating, alarm, and emergency procedures, and for licensed operator training. The actual trip point for the Level 3 instrumentation will be set above the analyzed setting limit of 4.5 inches in accordance with CNS procedures for instrument setpoint control to allow a sufficient margin for normal instrument accuracy and setpoint drift.

The Attachment 2 evaluation of the Level 3 setpoint was performed using plant data used during the analysis of operational transients of a previous Reload Licensing Submittal. To ensure that the results of the Attachment 2 evaluation will remain valid for Cycle 15, the proposed Level 3 setpoint of 4.5 inches will be used when performing the analysis of operational transients for the Reload 14, Cycle 15 Reload Licensing Submittal. Should NRC approval not be received for the proposed setpoint change prior to the start of Cycle 15, the District will retain the current Level 3 setpoint of 12.5 inches, which would then be set conservative to the setpoint used in the transient analysis for that cycle.

- 2.4. The main operational effect resulting from the proposed change in the Level 3 setpoint will be a reduction in the probability that isolations will occur during the drop in reactor water level immediately following the manual scram during normal plant shutdowns from low power. At the Level 3 setpoint, PCIS Groups 2, 3, and 6 isolations are initiated during the resulting shrink in water level and cause unnecessary challenges to this engineered safety feature. Several recent Licensee Event Reports (LERs), listed below, have been submitted by the District to report these PCIS isolations. It is believed that the reduction in the Level 3 setpoint will prevent these isolations during normal low power level shutdown scrams.



<u>LER No.</u>	<u>Date</u>	<u>Title</u>
86-022	10/30/86	Group Isolations and RPS Trip During Reactor Shutdown
87-014	6/15/87	Unplanned Reactor Shutdown as a Result of High Reactor Water Conductivity Due to Condenser Tube Leakage
88-004	4/04/88	Actuation of ESF Group Isolations Subsequent to a Planned Manual Scram Due to Momentary Low Reactor Water Level
89-012	4/27/89	Actuation of ESF Group Isolations Subsequent to a Planned Manual Scram Due to Momentary Low Reactor Vessel Water Level
90-002	3/03/90	Actuation of ESF Group Isolations Subsequent to a Planned Manual Scram and During Cooldown Due to Design Characteristics and Required Trip System Settings

- 2.5. All of the proposed changes described as being administrative changes are instrument setting name or setpoint unit or format changes which do not affect instrument operation or setpoints. The only administrative change of note is on Technical Specifications Table 3.2.B, where a missing minus sign will be added to the reactor low low water setpoint. This minus sign was inadvertently left off during Technical Specifications Amendment 121 and was recognized as a typo.

### 3.0. Description of Proposed Changes.

- 3.1. On page 8, the District proposes that the listed Level 3 setpoint in Specification 2.1.A.2, Reactor Water Low Level Scram and Isolation Trip Setting (Except MSIV), be changed from " $\geq + 12.5$  in." to " $\geq + 4.5$  inches." This specification is in a list of signals that are required to initiate a scram during certain plant transients.
- 3.2. On page 10, on Figure 2.1.1, Reactor Water Level Indication Correlation, the District proposes that the listed settings be changed to reflect the reduction in the Level 3 setpoint. The new Level 3 setpoint corresponds to 521.25 inches above the vessel zero reference level, 4.5 inches above the Instrument Zero reference level, and 168.69 inches above the Top of Active Fuel (TAF). This figure has also been redrawn for greater clarity.

- 3.3. On page 20, the District proposes that the Bases Section 2.1.A.2 for Specification 2.1.A.2 be revised to reflect the reduction in the Level 3 setpoint. The new setpoint is approximately thirty inches below the normal operating range and remains above the bottom of the steam separator skirt to protect the reactor recirculation pumps against carryunder of steam.

Bases Section 2.1.A.2 currently reads: " The set point for low level scram is above the bottom of the separator skirt. This level has been used in transient analyses dealing with coolant inventory decrease. The results reported in SAR Subsection 14.5 show that scram at this level adequately protects the fuel and the pressure barrier, because MCPR remains well above the MCPR fuel cladding integrity limit in all cases, and system pressure does not reach the safety valve settings. The scram setting is approximately 25 in. below the normal operating range and is thus adequate to avoid spurious scrams. "

The Bases Section is proposed to be revised as follows: " The setpoint for low reactor water level scram is established at Level 3 to ensure that during normal power operation the bottom of the separator skirt is not uncovered (this protects available reactor recirculation pump NPSH from carryunder). This level has been used in transient and accident analyses dealing with coolant inventory decrease. The results reported in USAR sections XIV-5 and XIV-6 show that when scram is initiated at Level 3, the fuel and process barrier are adequately protected because MCPR remains well above the MCPR fuel cladding integrity limit in all cases, and reactor coolant system pressure does not reach the safety valve settings. The scram setting is approximately 30 inches below the normal operating range and is thus adequate to avoid spurious scrams. "

The proposed revision of the bases section provides additional information regarding the basis for the selection of the Level 3 setpoint. The new information includes the previously unstated basis for establishing Level 3 above the bottom of the separator skirt, and notes that the low reactor water level scram is also used in the accident analysis. The format for referencing CNS USAR sections is also corrected as an administrative change.

- 3.3.1. Also on this page, the District proposes an additional administrative change in the Bases Section 2.1.A.4 for Specification 2.1.A.4. In the last sentence, the wording in the reference to the relevant transient analyses for the Turbine Control Valve Fast Closure Scram Trip Setting is proposed to be changed from " Paragraph 14.5.1.1 of the Safety Analysis Report " to " Section XIV-5.1.1 of the USAR," which is the correct format for referencing USAR sections.

- 3.4. On page 28, the District proposes that the Level 3 Reactor Low Water Level setpoint listed for NBI-LIS-101A, B, C, and D on Table 3.1.1, Reactor Protection System Instrumentation Requirements, be changed from " $\geq +12.5$  in. indicated level" to " $\geq +4.5$  in. indicated level."
- 3.5. On page 50, the District proposes that the Level 3 Reactor Low Water setpoint for NBI-LIS-101A, B, C, and D switch number 1 be changed from " $\geq +12.5$ " indicated level" to " $\geq +4.5$  in. indicated level" on Table 3.2.A, Primary Containment and Reactor Vessel Isolation Instrumentation.
- 3.5.1. An administrative change is also proposed for this page. The setting limit units for NBI-LIS-57A and B and NBI-LIS-58A and B, switch number 1, will be changed to "in. Indicated Level" for consistency.
- 3.6. On page 52a, the District proposes that the Level 3 Low Reactor Water Level isolation signal setpoints listed in Note 8 for Table 3.2.A be changed from "(+12.5 in.)" to " $\geq +4.5$  inches" for PCIS Groups 2 and 3 isolations.
- 3.6.1. As an administrative change, the District also proposes that the listed Group 3 Isolation setpoint for Reactor Water Cleanup System High Flow be changed from "(200% of system flow)" to " $\leq 200\%$  of system flow)." This proposed change makes the listed setting consistent with that on Table 3.2.A on Technical Specifications page 50.
- 3.7. On page 56, several administrative changes are proposed for Table 3.2.B (page 4), HPCI System Circuitry Requirements.
- 3.7.1. The District proposes that the setting limit for NBI-LIS-72A, B, C, and D switch number 3 be corrected with a minus sign to read " $\geq -37$  in. Indicated Level." The name for this setpoint is also changed from "Reactor Low Water Level" to "Reactor Low Low Water Level," which is the correct name for this level instrument setting. The minus sign for the setting was inadvertently left off in amendment 121. No changes to CNS surveillance testing or in the setpoint for these instruments were made as a result of the missing minus sign, which was recognized as a typo.
- 3.7.2. The District proposes that the setting limit units for NBI-LIS-101B and D be changed to "in. Indicated Level" for consistency.
- 3.8. On page 59, the District proposes that the Reactor Low Water Level setpoint listed in Table 3.2.B (page 7), Automatic Depressurization System (ADS) Circuitry Requirements, for Level 3 be changed from " $\geq 12.5$ " Indicated Level" to " $\geq 4.5$  in. Indicated Level."



- 3.8.1. An administrative change is also being proposed for this page. The name of the instrument setting for NBI-LIS-72A, B, C, and D, " Reactor Low Low Low Water Level," will be added, and the setting limit units changed to " in. Indicated Level " for consistency.
- 3.8.2. As an administrative note, this page is also subject to revision by Proposed Technical Specifications Change Number 69.
- 3.9. On page 83, the District proposes that the Level 3 setpoint listed in the Bases 3.2.A for Table 3.2.A be changed in the third paragraph under A from " 176.5" (+ 12.5)" " to " 168.5 inches (+ 4.5 inches) " for consistency.
- 3.9.1. An administrative change is also being proposed for this page. The word " inches " will be used instead of an abbreviation in the fourth paragraph of Bases 3.2.A when listing the low low low reactor water level setting.

4.0. Significant Hazards Determination.

10 CFR 50.91(a)(1) requires that licensee requests for operating license amendments be accompanied by an evaluation of significant hazards posed by the issuance of the amendment. This evaluation is to be performed with respect to the criteria given in 10 CFR 50.92(c). The following summarizes the evaluation performed in Attachment 2 to meet these requirements.

- 4.1. The proposed change to the Level 3 instrument setpoint in Technical Specifications does not involve a significant increase in the probability or consequences of an accident previously evaluated. The Attachment 2 evaluation demonstrates that the consequences of operational transients, loss of coolant accident (LOCA) events, and anticipated transient without scram (ATWS) events remain within the acceptance criteria of the licensing basis. The functions of the primary and secondary containment isolation valves are not affected by the proposed Level 3 setpoint change. The proposed setpoint reduces the probability of inadvertent reactor scrams on low reactor water level. The possibility of unnecessary activations of PCIS Groups 2, 3, and 6 isolations during low power level manual scrams as a part of normal plant shutdowns, which could divert operator attention from the shutdown, is also reduced. Thus, there is no significant increase in the probability of an accident previously evaluated as a result of the change to the setpoint in Technical Specifications.

The miscellaneous administrative changes do not involve a significant increase in the probability or consequences of an accident previously evaluated since they do not affect plant operations, equipment, or any safety related activity. Thus, these administrative changes cannot affect the probability or consequences of any accident.

- 4.2. The proposed change to the Level 3 setpoint in Technical Specifications does not create the possibility for a new or different kind of accident from any accident previously evaluated. As discussed in the Attachment 2 evaluation, the proposed change in the Level 3 setpoint in Technical Specifications does not introduce any hardware change, and the performance of the Level 3 initiated trips is not affected. The Level 3 trip will still fulfill its design basis objective of initiating a scram and the isolation of the primary containment on low reactor water level such that the licensing safety limits are maintained. No new modes of operation are created for any engineered safety feature or safety system. The potential for operator error is reduced by preventing unnecessary isolations during low power normal plant shutdowns, which may divert operator attention from the evolution. Therefore, the proposed Technical Specifications change does not create the possibility of any new accident or malfunction.

The miscellaneous administrative changes do not create the possibility of a new or different kind of accident from any accident previously evaluated since these changes are purely administrative and do not affect the plant operation or design. Therefore, these administrative changes cannot create the possibility of any accident.

- 4.3. The proposed change to the Level 3 setpoint in Technical Specifications does not create a significant reduction in the margin of safety. The Attachment 2 evaluation demonstrates that the results of the transient and accident analysis are within the required acceptance criteria and that all licensing safety limits are avoided. Therefore, the proposed change does not create a significant reduction in the margin of safety.

The miscellaneous administrative changes do not create a significant reduction in the margin of safety since these changes do not affect any safety related activity or equipment. These changes are purely administrative in nature and increase the probability that the Technical Specifications are correctly interpreted by adding clarifying information and correcting errors. Thus, these changes cannot reduce any margin of safety.

#### 5.0. Conclusion.

The District has evaluated the proposed changes described above against the criteria of 10 CFR 50.92(c) in accordance with the requirements of 10 CFR 50.91(a)(1). This evaluation has determined that the proposed change in Technical Specifications to allow the reduction in the Level 3 setpoint will not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility for a new or different kind of accident from any accident previously evaluated, or (3) create a significant reduction in the margin of safety. Therefore, the District requests NRC approval of this Proposed Change Number 79.