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August 23, 2025

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

Subject: Response to Nuclear Regulatory Commission's Request for Additional Information for Relief Request RS-01
Cooper Nuclear Station, Docket No. 50-298, Renewed License No. DPR-46

References:
1. Email from Thomas Byrd, U.S. Nuclear Regulatory Commission, to Linda Dewhirst, Nebraska Public Power District, dated July 28, 2025, "Cooper - REQUEST FOR ADDITIONAL INFORMATION RELIEF REQUEST RS-01 (EPID L-2025-LLR-0035)"
2. Letter from Khalil Dia, Nebraska Public Power District, to the U.S. Nuclear Regulatory Commission, dated March 4, 2025, "Inservice Testing Code of Record Interval Relief Requests for Pumps, Valves, and Snubbers"

The purpose of this letter is for the Nebraska Public Power District to respond to the Nuclear Regulatory Commission's request for additional information (RAI) (Reference 1) related to the Cooper Nuclear Station Inservice Testing Code of Record Interval Relief Requests for Pumps, Valves, and Snubbers (Reference 2).

The responses to the specific RAI questions are provided in the attachment to this letter.

This letter does not contain any new regulatory commitments.

If you have any questions concerning this matter, please contact Linda Dewhirst, Regulatory Affairs and Compliance Manager, at (402) 825-5416.

Sincerely,

Khalil Dia
Site Vice President

/bs

Attachment: Response to Nuclear Regulatory Commission Request for Additional Information (RAI)

cc: Regional Administrator w/ attachment
USNRC - Region IV

Cooper Project Manager w/ attachment
USNRC - NRR Plant Licensing Branch IV

Senior Resident Inspector w/ attachment
USNRC - CNS

NPG Distribution w/ attachment

CNS Records w/ attachment

Attachment

Response to Nuclear Regulatory Commission Request for Additional Information (RAI)

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

The Nuclear Regulatory Commission (NRC) RAI regarding Relief Request RS-01, is shown in italics. The Nebraska Public Power District (NPPD) response to the request is shown in normal font.

RAI-01 – Verification of Applicability of Previous RS-01 Snubber Information

RS-01, Section 7, "Precedents," states that the RS-01 submittal dated June 16, 2021 (ML21167A098), was previously approved for the final portion of the fifth 10-year IST interval at Cooper Nuclear Station (CNS) under EPID L-2021-LLR-0044, with NRC approval documented on July 21, 2022 (ML22200A277). The NRC staff notes that this prior approval was based on the use of ASME Code Case OMN-13, which has since been incorporated into the ASME OM Code 2022 Edition, Subsection ISTD.

Please confirm that the information and details related to mechanical and hydraulic snubbers provided in the October 12, 2021, RAI responses (ML21285A286) remain valid and applicable to the current Alternative Request RS-01 under the 2022 Edition of the ASME OM Code. Additionally, identify any changes to the safety-related snubber population since the previous IST interval, including any additions, removals, or replacements of snubbers.

NPPD Response

Yes, the information and details related to the mechanical and hydraulic snubbers provided in the October 12, 2021, RAI responses (ML21285A286) remain valid and applicable to the current Alternative Request RS-01 under the 2022 Edition of the American Society of Mechanical Engineers (ASME) Operating and Maintenance (OM) Code. Also, the safety-related snubber population has remained the same since the previous Inservice Testing (IST) interval submittal from October 12, 2021. The only replacements that have occurred with the safety-related snubbers at Cooper Nuclear Station (CNS) since October of 2021 have been associated with the service life replacement activity for those mechanical snubbers that had this activity come due since that date and one design equivalency replacement for a Pacific Scientific Arrestor (PSA) mechanical snubber, PSA-35, that installed a thicker adaptor nut to regain thermal margin in the extension direction.

RAI-02 – Snubber Service Life Maintenance under ISTD-6200

Attachment 2, "Snubber Service Life and Expiration Dates," of the October 12, 2021, RAI responses provided service life information for all safety-related mechanical and hydraulic snubbers. The NRC staff notes that the service life of 62 mechanical snubbers expired in 2022 or 2024, and 35 mechanical snubbers are projected to expire in 2026.

Pursuant to ASME OM Code 2022 Edition, paragraph ISTD-6200, "Service Life Reevaluation," please describe the specific actions taken to maintain or extend the service life of these mechanical snubbers. Specifically, indicate whether:

- *Service life extensions were formally evaluated and approved under CNS procedures;*
- *The affected snubbers were replaced, rebuilt, or refurbished;*
- *Condition monitoring or other activities were used to support the continued operability of the snubbers.*

Include a summary of the technical basis and documentation controls applied to ensure compliance with ISTD-6200.

NPPD Response

Generally, the CNS Snubber Program performs a service life activity approximately every 10 years (5 refueling outages) to replace each PSA mechanical snubber with a pretested, rebuilt PSA mechanical snubber, which is performed in conjunction with the 10-year examination for mechanical snubbers. As a minimum, the service life activity would consist of the snubber being examined, removed, tested, and re-installed. A separate service life evaluation per ISTD-6200 is performed once per cycle.

During the RE32 refueling outage snubber campaign (Fall/2022), 35 mechanical snubbers, with their service life activity coming due, were selected for the 10% sample groups and/or for the service life activity. All 35 were replaced with pretested, rebuilt mechanical snubbers. The as found examination and as found test on all 35 removed snubbers, including the service life monitoring snubbers, were completed satisfactorily. Following the completion of RE32, a service life evaluation that satisfies ISTD-6200 was completed per surveillance procedure 6.SNUB.602, "Snubber Service Life Evaluation." Based on the results from RE32 and the desire to maintain reliability into the future, no changes were made to the existing service life activities.

During the RE33 refueling outage snubber campaign (Fall/2024), 28 mechanical snubbers, with 27 of them having the service life activity coming due, were selected for the 10% sample groups and/or for the service life activity. All 28 were replaced with pretested, rebuilt mechanical snubbers. The as found examination and as found test on all 28 snubbers, including the service life activity snubbers, were completed satisfactorily. Following the completion of RE33, a service life evaluation that satisfies ISTD-6200 was completed per surveillance procedure 6.SNUB.602. Based on the results from RE33 and the desire to maintain reliability into the future, no changes were made to the existing service life activities.

In conclusion, none of the mechanical snubbers identified by the NRC staff were allowed to go beyond their nominal 10-year frequency for their programmatic service life activity. In addition, the mechanical snubbers coming due for a service life activity in the Fall of 2026 are currently identified as approved RE34 scope for the upcoming Fall 2026 refueling outage.

RAI-03 – Justification for Extension of 10-Year Visual Examination Grace Period to 120 Days

For the fifth 10-year IST interval, the NRC previously approved Alternative Request RS-01 to allow a 90-day grace period for the 10-year visual examination of snubbers in accordance with ASME Code Case OMN-13. In the current request, CNS proposes to extend this grace period to 120 days under the ASME OM Code 2022 Edition, which incorporates the provisions of OMN-13 under ISTD-4253 and Table ISTD-4252-1, Note 7.

Please provide the technical basis and justification for the proposed 120-day grace period. Specifically:

- *Explain how this proposed interval aligns with plant outage scheduling and campaign-based visual examination practices;*
- *Provide relevant plant-specific snubber performance history;*
- *Include any industry operating experience, vendor recommendations, or condition monitoring insights that support this extension;*
- *Demonstrate how the proposed alternative continues to provide an acceptable level of quality and safety consistent with the requirements of 10 CFR 50.55a(z)(1).*

NPPD Response

A 10-year snubber examination interval with a grace period of 120 days aligns well with the CNS plant outage scheduling. CNS has had a two-year refueling outage cycle since the Fall of 2012. The examination interval of once every 10 years for each individual snubber aligns well with a once every five refueling outage frequency. Therefore, this relief request will not be utilized to extend any individual snubber examination interval beyond five refueling outages. The purpose of this relief request is to account for the normal variations that occur with the pre-outage and outage system work windows.

As described in the original submittal, to maintain the snubber examinations on a five refueling outage interval and still meet the Subsection ISTD 10-year frequency with no grace would require careful scheduling and monitoring to ensure that the 10-year interval for each snubber was not exceeded prior to the completion of each exam. In some cases, the exam would have to be scheduled when specific systems are taken out of service, which limits the flexibility in scheduling. Also, delays may occur during the refueling outage (i.e., due to emergent issues, higher priority items, scheduling conflicts, etc.), which could potentially move out the initial scheduled date to slightly past the 10-year date required by Subsection ISTD. The time and resources to monitor these activities to this degree provides no additional benefit. Performing a snubber examination at 10 years or slightly over 10 years during the same scheduled snubber refueling outage campaign will not impact program effectiveness. Any actions required prior to plant startup per ISTD would still be implemented in the same manner. Therefore, the proposed grace period would allow these minor deviations in scheduling to occur without resulting in a change in program effectiveness.

The proposed grace period of 120 days also aligns well with the CNS campaign-based visual examination approach when utilizing the 2022 Edition of the ASME OM Code. At CNS, snubber examinations are generally performed during the snubber test campaign period. Under the 2022 Edition of the ASME OM Code, ISTD-5240 states that testing shall begin no earlier than 92 days (versus the previous 60 days of the 2004 Edition through the 2006 Addenda of the ASME OM Code) before a scheduled refueling outage and shall be completed prior to

completion of the refueling outage. Utilizing the same philosophy as the previously approved relief request, with an estimated refueling outage length of 30 days, the longest test campaign period and potentially worst-case proposed grace period under the 2022 Edition of the ASME OM Code would be approximately 120 days. The 120 days would also allow for slight variations in the scheduling of refueling outages.

Plant-specific snubber performance history at CNS has been excellent. CNS implemented individual snubber examination frequencies of once every 10 years per the ASME OM Code Case OMN-13 since the Spring of 2008 and no programmatic snubber examination failures and/or test failures have occurred during this period. The previously approved relief request implemented a 90-day grace period for snubber examinations and was implemented prior to refueling outages, RE32 (Fall/2022) and RE33 (Fall/2024). Based on data from these two refueling outages, the longest exam period identified to date for a snubber has been 10 years and 18 days, only a fraction of the allowed grace period. Also, all snubber exams performed at intervals slightly more than 10 years were all found to be completed satisfactorily. Therefore, it is expected that a grace period approaching 120 days would be very rare, but it is being requested as the worst-case grace period that could be observed. A grace period of 120 days is still a very small percentage (approximately 3.29%) of the 10-year examination interval and is expected to have a negligible effect on the snubber examination results.

Based on industry operating experience with snubber examinations, the original 10-year interval for ASME OM Code Case OMN-13 was based on extensive snubber examination data showing very few visual examination failures over several years of Code application. Other benefits with OMN-13 included a reduction in radiation dose while maintaining the continued reliability of the snubbers. In addition, since CNS has implemented an aggressive service life monitoring program for mechanical snubbers, CNS has not observed industry issues, referenced in NRC Information Notice 2015-09 for example, associated with lubricant degradation due to insufficient service life monitoring.

In conclusion, the examination, testing and service life monitoring aspects of the snubber program at CNS have been very effective and have resulted in excellent examination and test history for safety-related snubbers. This relief request will be utilized to account for the normal variations that occur with the scheduling of pre-outage and outage activities. The snubbers that come due for a snubber examination during the test campaign period will be examined prior to startup from the refueling outage. No snubber examination will be allowed to be extended beyond five refueling outages. The same philosophy utilized with the previously approved relief request is being utilized with the current relief request. The 120-day grace period is the worst-case grace period, but actual grace periods utilized are expected to be much smaller than 120 days. Therefore, the proposed alternative to allow a grace period of up to 120 days on the snubber 10-year examination interval for each snubber provides an acceptable level of quality and safety consistent with the requirements of 10CFR 50.55a(z)(1).

RAI-04 – Snubber Failure History Since June 16, 2021

Please identify any instances of snubber visual examination failures and/or functional test failures that have occurred since June 16, 2021. For each occurrence:

- *Describe the nature of the failure (e.g., type, location, failure mode);*
- *Summarize corrective actions taken;*
- *Identify any preventive measures implemented to ensure continued reliability of the affected snubber population.*

This information is requested to support the NRC staff's evaluation of the ongoing effectiveness of the CNS snubber program under the current Code of Record.

NPPD Response

Since June 16, 2021, CNS has not experienced any snubber visual examination failures and/or functional test failures with their safety-related mechanical or hydraulic snubbers. Therefore, with the grace period on the 10-year examinations for the snubbers implemented at CNS, the snubber program continues to be very effective at maintaining reliable safety-related mechanical and hydraulic snubbers.