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NLS2012016
March 12, 2012

50.55a

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

Subject: Response to Nuclear Regulatory Commission Request for Additional Information Re: Request for Relief for the Fourth 10-Year Pump and Valve Inservice Testing Program
Cooper Nuclear Station, Docket No. 50-298, DPR-46

References:
1. Letter from Lynnea E. Wilkins, U.S. Nuclear Regulatory Commission, to Brian J. O'Grady, Nebraska Public Power District, dated February 13, 2012, "Cooper Nuclear Station – Request for Additional Information Re: Request For Relief For the Fourth 10-Year Pump and Valve Inservice Testing Program (TAC NO. ME7021)"
2. Letter from Brian J. O'Grady, Nebraska Public Power District, to the U.S. Nuclear Regulatory Commission, dated August 24, 2011, "10 CFR 50.55a Request Numbers RV-07, Revision 0, and RV-01, Revision 1"

Dear Sir or Madam:

The purpose of this letter is for Nebraska Public Power District (NPPD) to submit a response to a request for additional information (RAI) from the Nuclear Regulatory Commission (NRC) (Reference 1). The RAI requested information is in support of the NRC's review of a 10 CFR 50.55a request for the Cooper Nuclear Station fourth, ten-year inservice testing interval submitted per Reference 2.

The attachment contains NPPD's response to the five questions contained in the RAI. No regulatory commitments are made in this submittal. If you have any questions concerning this matter, please contact David Van Der Kamp, Licensing Manager, at (402) 825-2904.

Sincerely,

Brian O'Grady

Brian J. O'Grady
Vice President – Nuclear and
Chief Nuclear Officer

A047
NRR

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Attachment

cc: Regional Administrator w/ attachment
USNRC - Region IV

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

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 Re: Request for Relief for the Fourth 10-Year Pump and Valve Inservice Testing Program

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

NRC Question 1:

Please describe how NPPD is meeting the requirements of ISTC-3530, "Valve Obturator Movement," ISTC-5151, "Solenoid-Operated Valves (SOVs) – Valve Stroke Testing," ISTC-5152, "SOVs – Stroke Test Acceptance Criteria," and ISTC-5153, "SOVs - Stroke Test Corrective Action," at CNS. Please state if NPPD also needs relief from these requirements based on this request.

NPPD Response:

Cooper Nuclear Station (CNS) does not require relief from ISTC-3530, Valve Obturator Movement. CNS is meeting the requirements of ISTC-3530 through the quarterly performance of surveillance procedure 6.HPCI.204, HPCI-SOV-SSV64 and HPCI-SOV-SSV87 IST Closure Test. With high pressure coolant injection (HPCI) not in operation, a demineralized water source is utilized to verify that HPCI-SOV-SSV64 opens when level switch HPCI-LS-680 (turbine exhaust drain pot high level) trips, allowing level in the gland seal condenser to start to rise due to water flow through HPCI-SOV-SSV64. After HPCI-LS-680 resets and HPCI-SOV-SSV64 closes, Operators verify the gland seal condenser level is steady.

Similarly, CNS verifies that HPCI-SOV-SSV87 opens when level switch HPCI-LS-98 (turbine exhaust drip leg high) trips, allowing the observation of water flow to a floor drain from a drain pipe downstream of HPCI-SOV-SSV87. After HPCI-LS-98 resets and HPCI-SOV-SSV87 closes, CNS observes the drain pipe downstream of HPCI-SOV-SSV87 for gross leakage past the valve. Therefore, CNS verifies valve obturator movement for both valves open and closed while simultaneously verifying the calibration of two level switches.

CNS is seeking relief from ISTC-5151, Solenoid-Operated Valves (SOVs) – Valve Stroke Testing, ISTC-5152, SOVs – Stroke Test Acceptance Criteria, and ISTC-5153, SOVs - Stroke Test Corrective Action. In Revision 0 of Relief Request, RV-01, CNS requested relief from the more generic requirement of ISTC-3500, Valve Testing Requirements. ISTC-3500 states that active and passive valves in the categories defined in ISTC-1300 shall be tested in accordance with the paragraphs specified in Table ISTC-3500-1 and the applicable requirements of ISTC-5100 and ISTC-5200. The applicable requirements of paragraph ISTC-5100 for Power-Operated Valves include the more specific requirements under that paragraph of ISTC-5151, ISTC-5152, and ISTC-5153. The Nuclear Regulatory Commission (NRC) approved RV-01, Revision 0, for the fourth interval at CNS per NRC letter dated June 14, 2006, Cooper Nuclear Station Re: Relief Requests for the Fourth 10-Year Pump and Valve Inservice Testing Program (TAC Nos. MC8837, MC8975, MC8976, MC8977, MC8978, MC8979, MC8980, MC8981, MC8989,

MC8990, MC8991, and MC8992). With RV-01, Revision 1, CNS is once again seeking relief from ISTC-3500, which includes the applicable stroke time sections for solenoid valves (ISTC-5151, ISTC-5152, and ISTC-5153).

NRC Question 2:

For this relief request, NPPD requested relief from ISTC-3510, "Exercising Test Frequency." NPPD stated in the August 24, 2011, request that it will exercise each valve to the full closed position on a quarterly basis, which is equivalent to the "nominally every 3 month" requirement of ISTC-3510. Please describe in greater detail the basis for NPPD's request for relief from ISTC-3510 since, it appears that NPPD can meet the requirement.

NPPD Response:

Nebraska Public Power District (NPPD) took the more general approach by requesting relief from the valve testing requirements of ISTC-3500, which includes ISTC-3510 from table ISTC-3500-1 and the power-operated requirements of ISTC-5100. Essentially, CNS is requesting the existing code requirements as a whole be replaced with the proposed alternative, which includes a unique way of exercise and fail-safe testing the solenoid valves in addition to the enhanced maintenance. This approach was utilized with Revision 0 of RV-01 and was approved by the NRC on June 14, 2006. The only change being requested in Revision 1 of RV-01 is an extension of the enhanced maintenance.

NRC Question 3:

Please provide any additional operational history (maintenance and reliability data) for valves similar to high-pressure coolant injection (HPCI)-SOV-SSV64 and HPCI-SOV-SSV87 at CNS that can demonstrate greater reliability of these valves for time periods longer than the four maintenance cycles stated in this request.

NPPD Response:

Only one other solenoid valve at CNS, HPCI-SOV-SSV88, HPCI exhaust dripleg drain to equipment drain valve, has the same manufacturer (Circle Seal Controls, formerly Atkomatic Valve Co., Inc.) and model number (15-590) as HPCI-SOV-SSV64 and HPCI-SOV-SSV87 solenoid valves. This additional valve is non-safety related and is in series with HPCI-SOV-SSV87. HPCI-SOV-SSV88 was replaced in June of 2005, at the same time as HPCI-SOV-SSV87. Since that time, one preventative maintenance refurbishment work order has been completed on HPCI-SOV-SSV88 and no corrective maintenance work orders have been necessary since the valve has been functioning acceptably.

Since similar valves at CNS were limited, an Equipment Performance and Information Exchange (EPIX) review was performed to determine if any issues with this manufacturer and model number existed. No failures were identified with the model 15-590 solenoid (parameters used were: Locations: All; Component Type: Valves, Dampers; Component Sub-Type: Solenoid;

Manufacturer: Circle Seal Controls, Atkomatic Valve Co, Inc.; Specific Model: All; and Date Range: Before 2-27-2012).

Sixteen failures for other models of Circle Seal Controls/Atkomatic solenoid valves were reported in EPIX. The most common of the failures included position indication (which CNS' solenoids do not have) and failures to open or close. One key commonality identified with the 16 failures was that 15 solenoid valves had been installed for extended periods of time (1426 to 13,435 days) without preventive maintenance work being performed. Based on this information, with quarterly exercise testing and a proposed three-year disassembly and examination activity being performed by CNS on HPCI-SOV-SSV64 and HPCI-SOV-SSV87, a component-related failure occurring with one of these valves is unexpected.

In addition, the test results over the last nine years (since 2003) for the quarterly exercise testing of HPCI-SOV-SSV64 and HPCI-SOV-SSV87 have all been completed satisfactorily, further supporting reliable operation. Therefore, the combination of the quarterly exercise testing and the proposed periodic three-year disassembly and examination of these valves will continue to result in very reliable operation from these components.

NRC Question 4:

Please discuss the consequences of HPCI-SOV-SSV64 and HPCI-SOV-SSV87 failure during normal and emergency operations.

NPPD Response:

HPCI-SOV-SSV64 is the HPCI exhaust dripleg drain to the gland condenser valve. HPCI-SOV-SSV87 is the HPCI exhaust dripleg drain to the equipment drains system valve. The two valves perform a non-safety open function to assist the dripleg steam trap in keeping the drain clear of accumulated condensate. The two valves have a safety function in the closed direction to maintain the pressure boundary integrity of the turbine exhaust line and to serve as a boundary barrier between ASME Code Class 2 piping and Non-Code Class piping.

Upon a high dripleg level condition, the Control Room is alerted via HPCI TURBINE EXH DRIP LEG HIGH LEVEL alarm and HPCI-SOV-SSV64 automatically opens to route exhaust condensate to the gland seal condenser. The procedure does not require operator action in response to the high level alarm, although Operators have the ability to manually operate the valve. A failure of HPCI-SOV-SSV64 to open could result in the turbine exhaust dripleg levels continuing to rise above the high alarm level, but would not keep HPCI from fulfilling its required safety function.

A failure of HPCI-SOV-SSV64 to close with the Non-Code class piping intact would result in an open exhaust route through a restricting orifice to the gland seal condenser. During HPCI operation in this situation, the exhaust would be condensed by the gland seal condenser. If the Non-Code class piping were to fail in addition to HPCI-SOV-SSV64 failing open, then the pressure boundary of the turbine exhaust line may be compromised.

Upon a high-high dripleg level condition, the Control Room is alerted via HPCI TURBINE EXH DRIP LEG HI-HI LEVEL alarm and HPCI-SOV-SSV87 (and the redundant drain isolation HPCI-SOV-SSV88) automatically opens to route condensate to the equipment drains system. If the alarm fails to clear with HPCI in standby, procedure guidance in response to the HI-HI alarm instructs Operators to place the HPCI AUXILIARY OIL PUMP switch to PULL-TO-LOCK. In this situation, HPCI would become inoperable and would be prevented from auto initiation, but would remain available for manual operation.

If HPCI is in operation when the HI-HI alarm is received, no operator actions are required and excess dripleg condensate would be carried to the suppression pool by the exhaust flow. A failure of HPCI-SOV-SSV87 to open would not prevent HPCI operation, but could impact the reliability of the system in standby if long-term high dripleg levels were allowed to fill the HPCI exhaust piping to the point of filling the turbine case. A failure of the valve to close (valve closes with loss of power) would allow condensate and/or turbine exhaust to escape to the equipment drain located in the HPCI room. HPCI-SOV-SSV88 is a redundant isolation valve to HPCI-SOV-SSV87 and has no safety function in the open or closed position.

NRC Question 5:

The August 24, 2011 submittal provides risk information but does not indicate that this is a risk-informed application consistent with Regulatory Guide (RG) 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," and RG 1.175, "An Approach for Plant Specific Risk-Informed Decision Making Inservice Testing." The staff does not typically consider risk information that does not address RG 1.174 and RG 1.175. Please confirm that this submittal is not intended to be risk-informed or provide information consistent with RG 1.174, RG 1.175, and RG 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk Informed Activities."

NPPD Response:

This submittal is not intended to be considered risk-informed. The risk information provided in this relief request is simply a risk review that was completed prior to allowing performance of this work online versus during an outage. NPPD provided this information in response to an NRC request for additional information for Revision 0 of this relief request (NPPD letter NLS2006014, dated March 8, 2006).

ATTACHMENT 3 LIST OF REGULATORY COMMITMENTS©[4]

Correspondence Number: NLS2012016

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		