Nebraska Public Power District

NEBRASKA PUBLIC POWER DISTRICT
P. O. BOX 499
1414 - 15TH STREET
COLUMBUS, NE 68602-0499

GUY R. HORN
Vice-President, Nuclear
(402) 563-5518

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

Subject: Reply to Notice of Violation
NRC Inspection Report No. 50-298/94-18
Cooper Nuclear Station, NRC Docket 50-298, DPR-46

Gentlemen:

The Nebraska Public Power District (District) hereby submits its response to the Notice of Violation (NOV) transmitted with NRC Inspection Report No. 50-298/94-18. This inspection report documents the results of the NRC inspection conducted by Messrs. R. A. Kopriva, W. C. Walker, and E. J. Ford from June 19 through July 30, 1994, on activities authorized at Copper Nuclear Station (CNS). The NRC identified two violations during its inspection of CNS. An explanation of the violations and corrective actions taken and planned in response to each violation is presented below. The NRC also identified a further concern on the performance of the operations staff. Per discussion with Phil Harrell (USNRC, Region IV), this concern, the corrective actions taken and their effectiveness will be provided by November 4, 1994.

Statement of Violation (298/9418-01)

> Technical Specification 3.5.C.1 states, in part, that the high pressure coolant injection system shall be operable whenever there is irradiated fuel in the reactor vessel, reactor pressure is greater than 113 psig, and prior to reactor startup from a cold condition.
>
> Contrary to the above, the high pressure coolant injection low steam line isolation pressure switches were not set at 113 psig (the actual setpoints were 127-133 psig), which resulted in the high pressure coolant injection system being inoperable.
>
> This is a Severity Level IV violation (298/9418-01) (Supplement I)

Admission or Denial of the Violation

The District admits the violation. However, this item was self identified by the District.

Reason for the Violation

The reason for the violation was a misinterpretation of Technical Specification requirements due to conflicting statements within the Technical Specifications. TS 3.5.C.1 requires, in part, that the HPCI system be operable when reactor pressure is greater than 113 psig. The surveillance requirements for operability of the HPCI system (4.5.C) require that flow shall be demonstrated to be at least 4250 gpm with system head corresponding to a reactor pressure of 1000 to 150 psig. The T.S. BASES for the HPCI system (3.5.C) says, at one point, "It is realized that the HPCI system is not designed to operate until reactor pressure

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exceeds 150 psig and is automatically isolated before the reactor pressure decreases below 100 psig. It is the intent of this specification to assure that when the reactor is being started up from a Cold Condition, the HPCI System is not known to be inoperable."

The HPCI turbine steam line low pressure isolation is used to isolate the HPCI turbine so that steam and radioactive gases will not escape from the turbine shaft seals to the reactor building after steam pressure has decreased to such a low value that the turbine cannot be operated. (USAR, pg VII-3-24) T.S. 3.2.B specifies that the low pressure trip setting shall be ≥ 100 psig.

The setpoint for the HPCI turbine steam line low pressure switches was selected to meet the T.S. 3.2.B requirement of ≥ 100 psig plus some conservatism while not interfering with T.S. surveillance requirements for flow at 150 psig. This appeared appropriate since even the T.S. BASES indicates that the HPCI system was not designed to operate until pressure exceeds 150 psig.

The most recent setpoint obtained for the HPCI turbine steam line pressure switches was 127 psig, decreasing. This value was developed to account for instrument accuracy with the maximum instrument error added. This value was considered conservative for the required isolation as well as being set at a value below where the HPCI turbine can operate efficiently.

The basic design requirement for the HPCI system is to assure reactor core cooling in the event of a small break LOCA until the vessel is depressurized and the LPCI or Core Spray system can maintain core cooling. System testing and analysis of the LPCI and Core Spray systems has shown that sufficient flow exists at 150 psig to satisfy this design basis. Therefore, the setting of 127 psig was adequate to meet the design requirements.

Immediate Corrective Actions and Results Achieved

The HPCI turbine steam line low pressure switches have been replaced with models having better accuracy at the required range. This allows adjusting the low pressure trip setpoint closer to the T.S. limit of ≥ 100 psig, decreasing.

Actions Taken to Prevent Recurrence

Proposed Technical Specification Change No. 136 has been submitted to the NRC that revises the T.S. 3.5.C.1 operability pressure of the HPCI system from 113 psig to 150 psig. This new value will ensure that the Technical Specification will be consistent with the design requirements of the HPCI System.

A further effort to eliminate occurrences of this type is the previously developed Cooper Nuclear Station Surveillance Testing Validation Program. This program is performing a detailed study and review of the testing requirements for each of the CNS systems with Technical Specification criteria. It is designed to validate the Technical Specification required surveillance program as well as verify that the Technical Specification component/system testing provides assurance the intended design function can be met.

Date When Full Compliance Will be Achieved

Full compliance will be achieved upon approval of the proposed Technical Specification change.

Statement of Violation (298/9418-02)

> 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states in part: "Measures shall be established to assure that applicable regulatory requirements and the design basis . . . are correctly translated into specifications, drawings, procedures, and instructions. These measures shall include provisions to assure that appropriate quality standards are

specified and included in design documents and that deviations from such standards are controlled."

Contrary to the above, Design Change Document 94-222 failed to include provisions to assure that appropriate quality standards were specified in that the instructions did not identify valves PC-V-595 and PC-V-596 as primary containment isolation valves nor did the instructions provide explicit directions for valve orientation. Consequently, the valves were installed backward.

This is a Severity Level IV violation (298/9418-02) (Supplement I)

Admission or Denial of the Violation

The District admits the violation. However, this item was self identified by the District.

Reason for the Violation

The reason for the violation was not considering small valves, such as air line or instrument valves, as significant enough to warrant specific identification and installation details in design documents. The District admits that the valves should have been identified as primary containment boundary valves in the design change. However, it was understood that these small valves can be easily selected and purchased for nuclear service with a pressure rating greatly in excess of application requirements. The valves used are capable of pressure retaining in either direction: under the seat or against the stem. In this particular case, for example, the application is for primary containment pressure (58 psig) and the type of valves used were tested on both sides of the seat to 3250 psig. No leakage occurred during the tests. Therefore, in this case, there was no safety significance due to the orientation of the valves.

The District considers this violation an indication of potential deficiencies in the design process that could affect plant safety and has initiated actions to correct the situation. Valve service (such as designation as a primary containment isolation valve) needs to be properly identified in design documents.

In addition, it is considered prudent to install valves with the process fluid against the most appropriate part of the valve to assure proper operation and protection. This usually would mean that the system pressure is directed under the valve seat to minimize potential valve stem leakage when the valve is closed. Therefore, the District feels it is appropriate to provide instructions in design documents to identify valve orientation. The basic requirement for this installation, however, is to meet leakage requirements for the application.

Immediate Corrective Actions and Results Achieved

The high and low side instrument calibration valves, PC-V-595 and PC-V-596, were removed and reinstalled with the pressure boundary under the seat. Reorienting the valves with the pressure under the seat was done prior to a full evaluation of the requirements, and, though considered prudent, provides little safety improvement due to the capability of these valves to retain system pressure in either direction.

The I&C technicians have been instructed that valves should be installed with the process fluid under the seat, unless otherwise directed, and to question any installation instructions that are not clear.

Actions Taken to Prevent Recurrence

All new I&C technicians will receive instructions on valve installation. An addition to the training requirements for I&C technicians has been initiated that will instruct all new-hire technicians that instrument (and other small) valves should be installed per instructions and that prudent installation in many cases

is with the process fluid under the seat. Both of these actions will ensure that design change activities and routine maintenance such as instrument removal results in the proper installation of valves.

Procedure changes are planned that will require design changes to include specific details on all valves included in the change. These details are to include any special application details, such as containment boundary, and specific valve orientation details when necessary to satisfy design requirements.

Date When Full Compliance Will be Achieved

Procedure changes are being developed to incorporate requirements for more valve installation details in design changes. Changes will be completed by December 31, 1994.

Full compliance will be attained when the above procedure changes are completed.

If there are any questions about the information presented or on other matters, please call.

Sincerely,

G. R. Horn
Vice President, Nuclear

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cc: Regional Administrator
USNRC - Region IV
Arlington, Texas

NRC Resident Inspector Office
Cooper Nuclear Station

NPG Distribution