APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-298/90-15 Operating License: DPR-46

Docket: 50-298

Licensee: Nebraska Public Power District (NPPD)
P.O. Box 499
Columbus, Nebraska 68602-0499

Facility Name: Cooper Nuclear Station (CNS)

Inspection At: CNS, Brownville, Nebraska

Inspection Conducted: March 26-30, 1990

Inspector: T F Stetka for 4/25/90
C. E. Johnson, Reactor Inspector, Plant Systems Section, Division of Reactor Safety — Date

Approved: T F Stetka 4/25/90
T. F. Stetka, Chief, Plant Systems Section Division of Reactor Safety — Date

Inspection Summary

Inspection Conducted March 26-30, 1990 (Report 50-298/90-15)

Areas Inspected: Routine, unannounced inspection of safety-related piping supports and restraint system testing and review of the pipe support qualification program.

Results: One violation was identified in paragraph 2.2.3 involving a failure to comply with the intent of the American Society of Mechanical Engineers (ASME) code requirements pertaining to the Section XI inservice inspection (ISI) program for Class 3 nonintegral component supports. This finding indicates a weakness in the ISI program. Management involvement should be increased in the ISI area to assure that required ASME code requirements are met and interpretations of those requirements are adequate.

Review of the pipe restraint (snubber) program indicated that this program is adequate and encompasses all requirements.

The pipe support qualification program is a well planned and organized effort which is considered a strength in the upgrade of safety-related pipe supports.

DETAILS

1. PERSONS CONTACTED

NPPD

*Y. Armstrong, Administrative Secretary
*R. Beilke, Radiological Support Supervisor
*B. Crow, Lead Mechanical Engineer
B. Frehrman, Project Manager, Pipe Supports
*J. Flaherty, Engineering Manager
*S. Freborg, Assistant Plant Engineering Supervisor
*R. Foust, Engineering Program Supervisor
*R. Gardner, Maintenance Manager
*R. Gibson, Quality Assurance Supervisor
*B. Hall, Health Physicist
*G. Horn, Division Manager, Nuclear Operations
*J. Sayer, Radiological Manager
*R. Schultz, ISI/IST Engineer
*G. Smith, Licensing Supervisor

NRC

*W. Bennett, Senior Resident Inspector
*G. Pick, Resident Inspector

*Denotes those present during the exit interview conducted on March 30, 1990.

The inspector also interviewed other licensee employees during the inspection.

2. TESTING OF PIPING SUPPORT AND RESTRAINT SYSTEMS (70370)

The purpose of this inspection was to determine that adequate programs and procedures are established in the area of safety-related pipe supports and restraint systems for proper installation, examination, testing, surveillances, and records retention and whether they are in compliance with regulatory requirements, Technical Specifications (TS), and license commitments.

2.1 Pipe Restraint (Snubber) Program

2.1.1 Procedure Review

The inspector reviewed seven procedures pertaining to inspection, operability, removal and installation, disassembly and assembly, and the functional testing of hydraulic and mechanical snubbers. These procedures contained adequate instructions and sufficient acceptance criteria. The inspector also reviewed TS Sections 3.6.H and 4.6.H, which provide instructions on limiting conditions for operation and surveillance requirements respectively. Procedures reviewed are listed in the attachment.

2.1.2 Observation of Functional Testing

The inspector observed the functional testing of two snubbers (mechanical and hydraulic). The operator performing the testing was knowledgeable of procedural requirements and acceptance criteria. Observations by the inspector indicated that both snubbers met the drag test, activation test, and bleed rate. The operator performing the test followed procedural instructions as required. No deficiencies were observed. Snubbers observed for functional testing were:

- MS-SNUB-MS-S-9B; Serial No. 449
- W/H; Serial No. 8086

2.1.3 Field Observations

The inspector performed an independent visual inspection of various size snubbers inside containment. Attributes that were selected for observations in the visual examination were:

- Deterioration, corrosion, physical damage, or deformations were not evident;
- Threaded connections were secured by locknuts, fasteners, and cotter pins;
- Snubber settings;
- Extension rods, support plates, and connecting joints were not bent, deformed, or loose; and
- All required bolts, locking devices, nuts, and washers were installed.

No significant deficiencies were identified.

The supports examined are listed in the attachment.

2.1.4 Records Review

The inspector reviewed records of snubbers that were visually examined in the field by NPPD, functional testing performed by NPPD, calibration records of the functional test equipment, and surveillances of the snubber program conducted during the refueling outage. Records reviewed indicated the following:

- Equipment was calibrated as required.
- Surveillances are performed as required by TS.
- Sample size was selected as required by TS.
- Functional test of snubbers were within established acceptance criteria.

- Identified deficiencies were noted and documented on the visual examination records.

No deficiencies were identified.

Records reviewed are listed in the attachment.

2.2 Inservice Inspection Program (ISI)

2.2.1 Procedure Review

The inspector reviewed the following two procedures pertaining to visual examinations of pipe supports and restraint systems included in the 10-year ISI plan (second interval). These procedures were written by General Electric (GE) Nuclear Energy and included VT-3 and VT-4 visual examination attributes and acceptance criteria.

- Visual Examination Procedure (VT-3), Revision 3, February 8, 1988.

- Visual Examination Procedure (VT-4), Revision 2, September 18, 1987.

Procedures reviewed by the inspector were adequate.

2.2.2 Visual Examination

The inspector observed GE inspectors perform their VT-3 and VT-4 inspections on several supports included in the ISI plan for this outage. In each case, the GE inspectors performed the visual inspections in accordance with established procedures. Any deficiencies identified were noted on the inspection checklist. Discussions with the visual examiners indicated that they were knowledgeable of the required inspection attributes and acceptance criteria.

The inspector also performed an independent visual inspection of ISI supports. Some supports examined by the inspector were not included for ISI inspection by the licensee. The supports examined indicated no significant deficiencies.

Supports examined by GE inspectors and the inspector are listed in the attachment.

2.2.3 ISI Program Review and Pipe Support Selection

The inspector reviewed the 10-year ISI program and had several discussions regarding program establishment, ASME code requirement commitments made in the Safety Evaluation Report (SER), and the selection process for pipe supports examined under this program.

As the result of these discussions and reviews, two concerns were identified. The first concern was that the number of Class 1 supports selected for examination appeared to be low in number. This concern was expressed to the licensee. The licensee reviewed the inspector's concern and later determined that 20 supports were inadvertently omitted from the schedule for this outage. The 20 supports were then added for inspection this outage. The inspector then

questioned the number of supports selected the previous outage. Following a review, the licensee subsequently informed the inspector that the supports from the previous outage were verified and that no other supports had been omitted. Since this discrepancy was identified prior to the end of the second 10-year interval, the licensee was not considered to be in violation of the ASME code.

As the result of this discussion, the licensee committed to add an engineering checklist to a procedure that will preclude the inadvertent omission of supports for future outages. This commitment will be considered an inspector followup item pending the addition and implementation of the checklist.

Inspector Followup Item (298/9015-01): Review the implementation of an engineering checklist to a procedure to preclude the inadvertent omission of pipe supports in future outages.

The second concern raised by the inspector pertained to ASME Class 3 supports. Review of the ISI program for the first and second 10-year interval indicated that no Class 3 nonintegral supports were included in the program for VT-3 examinations.

Paragraph IWD-1220, "Items Exempt From Examination," winter 1980 Addendum, addresses the exemption of "integral attachments" only. It does not exempt nonintegral attachments such as snubbers and other pipe supports. Subsection IWF, paragraph IWF-1300, "Support Examination Boundaries," specifies the support examination boundaries for both integral and nonintegral supports. Paragraph IWD-2620, "Visual Examinations VT-3," specifies that component supports and restraints within the boundary of each system specified in examination categories of Table IWD-2500-1 shall be subject to the Visual Examination VT-3. This specification includes nonintegral supports. The licensee has interpreted paragraph IWD-1220.2a and b, in conjunction with interpretation X1-1-83-12R-2 to exempt integral and nonintegral attachments from ASME code examination.

Further investigation by the inspector and several meetings with the licensee indicated that the licensee had misinterpreted the ASME code requirements on Class 3 nonintegral supports. A telephone conference call between the NRC and licensee as held March 29, 1990, to discuss this issue. As the result of this conference call the NRC informed the licensee that they had misinterpreted the code requirements for Subsection IWD, "Requirements for Class 3 Components of Light-Water Cooled Power Plants," winter 1980 Addendum, and that the ASME code interpretation (X1-1-83-12R-2) did not apply in this case.

Failure to meet the intent of the ASME code requirements for the examination of Class 3 nonintegral component supports is considered to be contrary to the requirements of Section XI of the ASME Boiler and Pressure Vessel Code and TS 4.6.G.

Violation (298/9015-02): Failure to include ASME Class 3 (nonintegral) component supports for examination in both the first and second 10-year ISI program.

3. PIPE SUPPORT UPGRADE QUALIFICATION PROGRAM

The inspector received a complete overview and status of the pipe support upgrade program by the licensee's project manager. The project manager informed the inspector of the following:

- As-built packages are 100 percent complete;
- Final drawing changes are in progress;
- Pipe support stress analysis is 100 percent complete by their consultants;
- NPPD's engineering has completed 90 percent of the review of the consultants analysis; and
- Modifications are 30 percent complete.

The project manager informed the inspector that all operability concerns have been taken into consideration pertaining to modification changes. This program appears to be well planned and organized and is considered to be an enhancement to the site's pipe support upgrade program.

4. EXIT INTERVIEW (30703)

An exit interview was conducted on March 30, 1990, with the licensee representatives identified in paragraph 1. During the interview, the inspector reviewed the scope and findings of the inspection as discussed in this report. Other meetings between the inspector and licensee management were held periodically during the inspection period to discuss identified concerns. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspector.

ATTACHMENT

Snubber Procedures

7.2.34.1, "Snubber Inspections," Revision 2, January 4, 1990

7.2.34.2, "Pipe Snubbers Removal and Installation," Revision 2, January 4, 1990

7.2.34.3, "Grinnell Figure 200/201 Hydraulic Snubber Disassembly and Assembly," Revision 1, November 9, 1988

7.2.34.4, "Pacific Scientific PSA-3 and PSA-10 Snubber Disassembly Overhaul and Assembly," Revision 0, March 30, 1989

7.2.34.7, "Grinnel Figure 200/201 Hydraulic Snubber Functional Test," Revision 1, February 22, 1990

7.2.34.8, "Pacific Scientific Snubber Functional Test," Revision 1, February 8, 1990

6.3.10.9.1, "Snubber Operability," Revision 16, September 7, 1989

Snubbers Visually Examined (Independent)

VR-S7B (Serial No. 12644)
VR-S12 (Serial No. 6877)
VR-S7A (Serial No. 336)
RH-S8C (Serial No. 8139M)
RH-S8A (Serial No. 6997)
RH-S8B (Serial No. 5230)
VR-60-7-2 (Serial No. 404)
VR-S23B (Serial No. 484)
VR-S32 (Serial No. 17204)
VR-S6 (Serial No. 17201)
VR-S24B (Serial No. 5892)
VR-S23A (Serial No. 5887)
VR-S24A (Serial No. 4884)
RF-S10 (Serial No. 15142)
RF-S17 (Serial No. 5891)
SS-3A2 (Serial No. 338)
SS-3B2 (Serial No. 5308)
SS-3A1 (Serial No. 5312)
VR-61-17-X (Serial No. 5310)

ISI Supports Examined (Independent)

RH-H123
VRH-64C
VRR-50-1.1
RF-H70
VR-G21

MS-132
RCC-H10
RH-H-32A
RH-H3-X225
VRS-27
VPS-13-1A-1
VR-56-24-X
H-4
VRR-30
H-9
VRH-53
VRS-915

ISI Support Examinations Observed (GE VT-3 Examination)

RR-H7-B
RR-H7-A
RF-H15

Functional Test Records Reviewed

Hydraulic Snubbers (Grinnell)

RHR-SNUB-RH-S43 (Serial No. 10058)
RHR-SNUB-RH-S78A (Serial No. 8565)
RHR-SNUB-RH-S23 (Serial No. 10053)
RHR-SNUB-BS-S116B (Serial No. 8075)
CS-SNUB-CS-S1 (Serial No. 10062)

Mechanical Snubbers (PSA)

RF-SNUB-RF-S9 (Serial No. 456)
MS-SNUB-MS-S63 (Serial No. 463)
MS-SNUB-VR-S1 (Serial No. 17207)
MS-SNUB-VR-60-7-X (Serial No. 15144)
MS-SNUB-VR-62-8-2 (Serial No. 406)