APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-298/94-06

License: DPR-46

Licensee: Nebraska Public Power District
P.O. Box 499
Columbus, Nebraska

Facility Name: Cooper Nuclear Station

Inspection At: Brownville, Nebraska

Inspection Conducted: January 31 through February 4, 1994

Inspectors: W. M. McNeill, Reactor Inspector, Engineering Branch, Division of Reactor Safety

Accompanying
Personnel: K. A. Connaughton, Project Manager, Nuclear Regulator Regulation

Approved: Thomas F. Westerman, Chief, Engineering Branch — Date: 3-2-94

Inspection Summary

Areas Inspected: Routine, announced inspection of the 10 CFR 50.59 safety evaluation program and its implementation.

Results:

- The licensee had established a program for performing safety evaluations in accordance with 10 CFR 50.59 (Section 2.1).
- The narrow definition of licensing basis and the program's complexity were considered weaknesses. The computerized data base of the safety analysis report and the format used for safety evaluations were considered strengths (Section 2.1.2).
- Two screenings for temporary modifications were found during the inspection that did not identify that the plant as described in the safety analysis report was affected. These were classified as a non-cited violation of regulatory requirements (Section 2.2.3.1).

- It was found during the inspection that plant temporary modifications may not have received approval from the onsite review committee before installation. This was because of an inadequate procedure which was identified as a violation with no response required (Section 2.2.4).

- Overall, the program for preparation and review of 10 CFR 50.59 screenings and safety evaluations was well defined and adequately implemented with some weaknesses noted (Section 2.3).

Summary of Inspection Findings:

- Noncited violation for improper screenings was identified (Section 2.2.3.1).

- Violation 298/9406-01 was opened and closed (Section 2.2.3.2).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - Documents Reviewed

DETAILS

1 PLANT STATUS

During this inspection period, the plant was at 100 percent power.

2 SAFETY EVALUATION PROGRAM (37001)

2.1 Program

The licensee had established a program; however, the program was defined in several procedures such as Engineering Procedure 3.3, Procedures 0.3 and 0.4, as well as Station Computer Procedure 11.1. This program provided for reviewing changes to the facility as described in the safety analysis report. It also addressed tests and experiments to the facility not described by the safety analysis report. The scope of the licensee's design basis for safety evaluations was limited to the safety analysis report and the Technical Specifications. The documents reviewed as having a potential for an unreviewed safety question were: design changes, special procedures, special test procedures, software design changes, equipment specification changes, approved maintenance work requests, procedure changes, setpoint changes, and temporary modifications. There were provisions for handling trivial conditions (non-safety issues), such as the location of office walls.

The safety evaluation program was a three step process to determine if an unresolved safety question could result from a change, test, or experiment. The first step of the process was a screening documented on a form titled "10 CFR 50.59 Reportability Analysis (or Review)." Some activities were pre-screened because they, by nature, were very unlikely to require a screening. These activities were plant temporary modifications, procedure change notices, and setpoint changes. The first step was to determine if a safety evaluation was required. If an activity changed the facility described in the safety analysis report, or a test or experiment was not described in the safety analysis report, the second step of the process required that a safety evaluation be performed. The safety evaluation was performed to determine if the proposed activity involved an unreviewed safety question. If an unreviewed safety question was determined to exist, the third step was to assure that the change, test or experiment was not performed without prior NRC approval.

Safety evaluations were performed on all design changes, special procedures, software design changes and temporary shielding requests. Screenings were always performed on equipment specification changes and maintenance work requests and a safety evaluation performed when required. Screenings were performed on procedure change notices, setpoint changes and plant temporary modifications, only if required as a result of the pre-screening process.

2.1.1 Training

The inspectors reviewed the training plan and student handout material. The program required that all safety evaluations be prepared by qualified and trained personnel. Re-qualification requirements were established for every 2 years. The program included written exams.

2.1.2 Strengths and Weaknesses

The licensee's program included a narrow definition of licensing basis documents. The licensing basis documents only included the safety analysis report and the Technical Specifications. This was considered a weakness. Other licensees have used more to define the licensing basis for their facility, such as design basis reconstitution documents. Another weakness was the fragmentation of the program into several procedures that made the program complex. With individual departments having their own procedures, opportunities for differences were present in the performance of screenings and safety evaluations.

A computerized data base had been established that contained the text of the safety analysis report. This provided for a word search capability. This capability was considered to be a strength. The procedure on safety evaluations established a set format for these reports. This set format assured a good scope and depth of analysis in the safety evaluations. This was accomplished by requiring lists of items to be addressed such as: the system effected; concerns (seismic, separation, operator error, etc.); as well as failure modes and effects analysis. This was considered to be a trength.

2.2 Implementation

The inspectors reviewed the "Annual Operating Report," dated March 1, 1993. During 1992, the licensee reported 30 design changes, 10 special test procedures, 8 procedure change notices, and 6 were miscellaneous under 10 CFR 50.59. Since the 1992 report, 55 design changes, 14 setpoint changes, 12 temporary shielding requests, and 9 miscellaneous reportable safety evaluations were performed.

2.2.1 Unreviewed Safety Questions

Within the last 2 years, the licensee identified three design changes where unreviewed safety questions existed which required NRC approval before implementation. The inspectors reviewed two of these unreviewed safety questions identified in "Documents Reviewed," Attachment 2 for conformance to 10 CFR 50.59 and the licensee's procedures including the qualification and training of preparers. These unreviewed safety questions were processed properly.

2.2.2 Safety Evaluations

The inspectors reviewed the safety evaluations identified in "Documents Reviewed," Attachment 2, for conformance to 10 CFR 50.59 and the licensee's procedures, including the qualification and training of preparers. The inspectors reviewed 18 design changes, 2 special test procedures, 1 special procedure, and a procedure change notice. Safety evaluations were very thorough and complete. Typically, they were 10 to 15 pages in length. These safety evaluations were performed satisfactorily.

2.2.3. Screenings

The inspectors reviewed the screenings identified in the "Documents Reviewed," Attachment 2, for conformance to the procedure requirements. The 11 screenings reviewed consisted of 9 temporary modifications, 1 procedure change notice, and 1 special test procedure. A sample of 24 document change notices and 7 plant temporary modifications were reviewed that the licensee did not screen, but only pre-screened. This sample is identified in the "Documents Reviewed," Attachment 2. Screenings were documented on the three page forms and were found to provide sufficient information to support their conclusions.

2.2.3.1 Improper Screenings

Inspector review of the screenings conducted for two temporary modifications disclosed that the licensee had incorrectly determined that the modifications did not depart from the descriptions of plant systems and equipment contained in the Updated Safety Analysis Report. On March 19, 1993, the licensee installed a modification which defeated the reactor water cleanup isolation function associated with high nonregenerative heat exchanger outlet temperature. This function is described in Updated Safety Analysis Report, Section IV.9.3, "Reactor Water Cleanup System." On July 31, 1993, the licensee installed a modification which defeated the rod block and rod drift alarm functions associated with the Position 48 rod position information system probe for Control Rod 22-03. These functions are described in Updated Safety Analysis Report, Section VII.7.4.3.2.

During the inspection, the licensee initiated two deficiency reports to evaluate the circumstances under which these improper screenings occurred and to initiate corrective actions to prevent reoccurrence. Given the isolated nature of these occurrences, their minor safety significance, and the licensee's prompt initiation of corrective action once identified, these violations are not being cited.

2.2.4 Station Operations Review Committee Review of Temporary Modifications

During inspector review of Conduct of Operations Procedure 2.0.7, "Plant Temporary Modifications," dated July 22, 1993, the inspectors noted that the Station Operations Review Committee's review and approval of temporary modifications which did not affect safety systems was not required before

installation of such modifications. This procedural provision was inconsistent with Technical Specification 6.2.1.A.4.d, which requires that the Station Operations Review Committee review proposed changes or modifications to station systems or equipment as discussed in the Updated Safety Analysis Report, including nonsafety systems and equipment. As a result, temporary modifications falling within the scope of Technical Specification 6.2.1.A.4.d may not receive prior review and approval by the Station Operations Review Committee. This procedural provision is contrary with the provisions of Technical Specification 6.2.1.A.4.d, and is a violation (298/9406-01). During the inspection, the licensee initiated action to revise Procedure 2.0.7 to require Station Operations Review Committee review of all proposed modifications in accordance with Technical Specification 6.2.1.A.4.d.

2.3 Summary

The program for 10 CFR 50.59 screenings and safety evaluations was well defined. There were a few minor programmatic weaknesses. The implementation of the program was only adequate, in that, in some limited circumstances, screenings were inadequately performed when required and a noncited violation was identified in this regard. A violation was identified because prior approval by the onsite review committee was not required by procedure for temporary modifications.

ATTACHMENT 1

1 PERSONNEL CONTACTED

1.1 Licensee Personnel

*R. Beilke, Acting Radiological Manager
*L. Bray, Regulatory Compliance Specialist
*R. Brungardt, Operations Manager
*M. Dean, Licensing and Safety Supervisor-CNS
*J. Dutton, Nuclear Training Manager
*J. Dykstra, Electrical/Instrument and Control Engineer
*J. Flaherty, Corrective Action Program Oversight Group
R. Foust, Assistant Engineering Manager
*R. Gardner, Plant Manager
*H. Hitch, Site Services Manager
M. Hillstrom, Technical Support Supervisor
*G. Horn, Vice President Nuclear
*J. Hotovy, Project Manager
*A. Hubl, Safety Review and Audit Board Administrator
*J. Lynch, Engineering Manager
*E. Mace, Senior Manager of Site Support
*M. Mager, Senior Engineer
*J. Meacham, Senior Manager of Safety Assessment
*C. Moeller, Technical Staff Manager
D. Montgomery, Lead Instructor
*D. Robinson, Quality Assurance Assessment Manager
*J. Sayer, Technical Assistant to Plant Manager
*G. Smith, Quality Assurance Operations Manager
M. Stoner, Operations Engineer
J. Thompson, Lead Reactor Engineer
*R. Wenzl, Site Engineering Manager-CNS
S. Wheeler, Senior Reactor Engineer
*V. Wolstenholm, Division Manager Quality Assurance

1.2 NRC Personnel

*R. Kopriva, Senior Resident Inspector

In addition to the personnel listed above, the inspectors contacted other personnel during this inspection period.

* Denotes personnel that attended the exit meeting.

2 EXIT MEETING

An exit meeting was conducted on February 4, 1994. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee did not express a position on the inspection findings documented in this report. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.

ATTACHMENT 2

1 DOCUMENTS REVIEWED

1.1 Procedures

CNS Procedure 0.3, "Station Operations Review Committee," Revision 14, June 1, 1993

CNS Procedure 0.4, "Procedure Change Process," Revision 18, September 16, 1993

Station Computer Procedure 11.1, "Computer Software Design Change," Revision 12, September 30, 1993

CNS Engineering Procedure 3.3, "Station Safety Evaluations," Revision 12, December 1, 1993, and Revision 11, October 17, 1991

CNS Engineering Procedure 3.4, "Station Modifications," Revision 15, December 1, 1993

CNS Engineering Procedure 3.4.3, "Design Change," Revision 4, September 30, 1993

CNS Engineering Procedure 3.4.4, "Temporary Design Change," Revision 5, September 30, 1993

CNS Engineering Procedure 3.4.5, "Equipment Specification Changes," Revision 4, September 30, 1993

CNS Engineering Procedure 3.5, "Special Test Procedures/Special Procedures," Revision 10, December 3, 1992

CNS Engineering Procedure 3.14, "Temporary Shielding," Revision 3, September 6, 1990

CNS Engineering Procedure 3.17, "Safety and Relief Valve Setpoint Control," Revision 3, October 10, 1991

CNS Engineering Procedure 3.26, "Instrument Setpoint Control," Revision 5, January 7, 1993

CNS Operations Procedure 2.0.7, "Plant Temporary Modifications Control," Revision 17, July 22, 1993

Lesson Plan ADM003-01-01, "10 CFR 50.59," Revision 03.01

1.2 Unreviewed Safety Questions

DC 89-219, "Average Power Range Monitor/Rod Block Monitor Technical Specification Improvement and Extended Load Line Limit Analysis Implementation," June 12, 1991

DC 91-088, "Main Steam Line Radiation Monitor Scram and Group 1 Function Removal," December 14, 1992

1.3 Safety Evaluations

DC 88-201C, "High Pressure Coolant Injection Room Cooling Modification," February 21, 1991

DC 89-049, "Reactor Building Ventilation Isolation Radiation Monitor Upgrade," April 19, 1991

DC 89-180A, Amendment 1, "Testable Check Valve Actuators," December 12, 1991

DC 89-180A, "Testable Check Valve Actuators," May 28, 1991

DC 89-285A, "CRD-CV-25CV and CRD-CV-26CV Valve Replacement," May 20, 1991

DC 89-285, Amendment 1, "Control Rod Drive Check Valve Assembly," May 3, 1990

DC 89-285, "Control Rod Drive Testable Check Valve Assembly," December 22, 1989

DC 90-036, "Testable Gaskets and Two New Small Instrument Pressure Taps on the Torus Drain Inline," February 1, 1993

DC 90-098A, "Test Jack Installations and Diesel Generator Test Connections," November 18, 1992

DC 90-168, "Reactor Water Clean Up High Pressure Alarm," February 7, 1991

DC 90-320, Amendment 1, "Hydrogen/Oxygen Analyzer System Inner Cabinet Modifications," December 12, 1992

DC 90-0381A "Control Rod Drive Scram Discharge Volume Relief Valve Removal," May 20, 1991

DC 91-123, "Isolation of Service Water to Diesel Generator Heating and Ventilating Units," March 27, 1992

DC 91-123, Amendment 1, "Isolation of Service Water to Diesel Generator Heating and Ventilating Units," October 29, 1992

DC 93-047, "Reactor Feed Pump Minimum Flow Alterations," June 8, 1993

DC 93-058, "125/250 VDC Battery Charger Modification," March 21, 1993

DC 93-082, "Support and Piping Modifications/Installations on Main Steam and Radioactive Equipment Waste Systems," June 16, 1993

TDC 93-020, "Energizing of Elapsed Time Meters for 4160 VAC Components," June 11, 1993

STP 90-238, "Jet Pump Operability Data," June 1, 1990

STP 91-099, "Reactor Equipment Cooling System Flush," November 15, 1991

SP 93-057, "Residual Heat Removal Shutdown Cooling/Fuel Pool Cooling Parallel Operation," May 18, 1993

"Emergency Procedure Guideline," Revision 2, May 10, 1993

1.4 Screenings

PTM 93-17, "Bypass Reactor Water Clean Up Isolation on High Temperature," March 19, 1993

PTM 93-29, "Bypass Drifts to Allow Monitoring of Remaining Control Rod Drives," May 17, 1993

PTM 93-30, "Remove Water Treatment Valve," May 28, 1993

PTM 93-32, "Install Pressure Gauge on Residual Heat Removal Suction Line," May 26, 1993

PTM 93-41, "Remove Rod Position Indication for Control Rod Drive 22-03," August 1, 1993

PTM 93-46, "RR-VBP-MBX1 Alert Setpoint," August 13, 1993

PTM 93-48, "Leak Sealant of High Pressure Turbine Manway Leak," August 16, 1993

PTM 93-52, "Alternate Flow Path to the Water Treatment Plant," September 16, 1993

PTM 93-56, "Effluent Radiation Substitute Flow Valve," September 24, 1993

Procedure Change Notice 2.2.20.2, "Operation of Diesel Generators from Diesel Generator Rooms," Revision 3

STP 93-62, "Residual Heat Removal Quad Heat Up Test," May 13, 1993

1.5 Plant Temporary Modifications and Procedure Change Notices Not Screened

PTM 93-20, "Emergency Condensate Storage Tank Drain to the Suppression Pool," April 3, 1993

PTM 93-22, "Stroke Testing of RHR-MO-89B," April 19, 1993

PTM 93-24, "Stroke of HPCI-MOV-M058 with Low Steam Supply Pressure and Low Emergency Condensate Storage Tank Level Signals," April 28, 1993

PTM 93-25, "Close HPCI-MOV-58MU," April 29, 1993

PTM 93-28, "Bypass Source Range Monitor Downscale Rod Block," May 13, 1993

PTM 93-39, "Clear High Pressure Coolant Injection Low Pressure Steam Isolation," August 18, 1993

PTM 93-57, "Close Core Spray Minimum Flow Valves," October 12, 1993

Procedure Change Notice 2.1.9, "Hot Standby Condition," Revision 13

Procedure Change Notice 2.1.22, "Recovering from a Group Isolation," Revision 15

Procedure Change Notice 2.2.5, "Condensate Filter Demineralizer System," Revision 22

Procedure Change Notice 2.2.18, "4160 Volt Auxiliary Power Distribution System," Revision 34

Procedure Change Notice 2.2.32, "Fuel Pool Cooling and Demineralizer System," Revision 22

Procedure Change Notice 2.2.51, "Hydrogen Gas System," Revision 27

Procedure Change Notice 2.2.87, "Heating, Ventilation, and Air Conditioning Instrument and Control Shop," Revision 7

Procedure Change Notice 6.1.12, "Automatic Depressurization System Reactor Pressure Permissive Calibration and Functional/Functional and Logic Tests," Revision 12

Procedure Change Notice 6.1.20, "South Scram Discharge Volume High Water Level Switches and Transmitters Examination, Calibration and Functional Test," Revision 5

Procedure Change Notice 6.1.21, "Source Range Monitor Quarterly Calibration and Functional Test," Revision 20

Procedure Change Notice 6.2.2.3.13, "High Pressure Coolant Injection Pump Flow Discharge Flow Calibration and Functional," Revision 22

Procedure Change Notice 6.3.15.3, "125/250 Volt Station and Diesel Fire Pump Battery Weekly Check," Revision 25

Procedure Change Notice 6.3.15.9, "250 Volt Station Battery Performance Discharge Test," Revision 4

Procedure Change Notice 6.4.6.3.1, "Control Room Air Sampling System Known Source Calibration," Revision 5