APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-298/84-16 License: DPR-46

Docket: 50-298

Licensee: Nebraska Public Power District (NPPD)
P. O. Box 499
Columbus, NE 68601

Facility Name: Cooper Nuclear Station (CNS)

Inspection At: Cooper Nuclear Station - Brownville, Nebraska

Inspection Conducted: August 1-2, 1984

Inspectors: Blaine Murray for 9/10/84
R. E. Baer, Radiation Specialist Date

Blaine Murray 9/10/84
B. Murray, Chief, Facilities Radiological Protection Section Date

Approved: Blaine Murray 9/10/84
B. Murray, Chief, Facilities Radiological Protection Section Date

Wm McDuffee for 9/12/84
J. P. Jaudon, Chief, Reactor Project Section A Date

Inspection Summary

Inspection Conducted August 1-2, 1984 (Report 50-298/84-16)

Areas Inspected: Special, announced inspection of the licensee's proposed radiation protection program for the removal of existing recirculation piping and installation of new pipe including: personnel qualifications, staffing, training, equipment and supplies, planning and scheduling, ALARA, and exposure controls. The inspection involved 18 inspector-hours onsite by two NRC inspectors.

Results: Within the seven areas inspected, no violations or deviations were identified. Two new open items are identified in paragraph 2.

DETAILS

1. Persons Contacted

NPPD

*P. Thomason, Nuclear Operations Division Manager
B. Beilke, Chemistry and Health Physics Supervisor
*C. Goings, Regulatory Compliance Specialist
*G. Horn, CNS Construction Manager
*J. Meacham, Technical Manager
J. Sayer, Staff Assistant
*V. Wolstenholm, Quality Assurance Manager

Others

P. Conroy, Chicago Bridge and Iron (CB&I), ALARA Specialist
J. Pritchard, CB&I, Site ALARA Coordinator

*Denotes those present during the exit interview on August 2, 1984.

The NRC inspectors also interviewed other NPPD and contractor personnel during the inspection.

2. Open Items Identified During This Inspection

(Open) Open Item (298/8416-01): Qualifications of Radiation Protection Manager - Although the designated chemistry and radiation protection supervisor (radiation protection manager) meets the minimum qualification delineated in Regulatory Guide 1.8, there are questions about his actual experience level. See paragraph 3.

(Open) Open Item (298/8416-02): Recirculation Piping Radiation Protection Plan - The draft radiation protection plan for removal and replacement of recirculation piping did not include several health physics items. See paragraph 4.

3. Qualifications, Staffing, and Training

The NRC inspectors reviewed the qualifications, staffing, and training for CNS and contractor personnel.

a. CNS Staffing

The NRC inspectors reviewed the qualifications of the individual selected in late June 1984, to fill the position of chemistry and health physics supervisor. Technical Specification 6.1.4, "Plant Staff Qualifications," states, ". . .The chemistry and health physics supervisor shall meet or exceed the qualifications of Regulatory

Guide 1.8, September 1975. . . ." Regulatory Guide 1.8 includes the following qualification criteria:

- The radiation protection manager (RPM) should be an experienced professional in applied radiation protection at nuclear facilities dealing with radiation protection problems and programs similar to those at nuclear power stations.

- The RPM should have the technical competence to establish radiation protection programs and the supervisory capability to direct the work of professionals, technicians, and journeymen required to implement the radiation protection programs.

- The RPM should have at least 5 years of professional experience in applied radiation protection.

- At least 3 years of this professional experience should be in applied radiation protection work in a nuclear facility dealing with radiological problems similar to those encountered in nuclear power stations, preferably in an actual nuclear power station.

The NRC inspectors discussed Regulatory Guide 1.8 qualification criteria with the current CNS chemistry and health physics supervisor. The incumbent stated that he was an officer in the nuclear Navy program between January 1979 and January 1983. During this 48-month period he was associated with the Navy's chemistry and radiation protection program on operating nuclear ships and on a ship in overhaul. Between April 1983 and June 1984, the current chemistry and health physics supervisor held the position as the CNS training manager. While this background appears to meet the literal requirements of Regulatory Guide 1.8, it does not fulfill the existing NRC guidance regarding the evaluation of qualification criteria. The NRC inspectors also discussed precedents and evaluation methods with representatives of NRC's Office of Nuclear Reactor Regulation. These reviews and discussions revealed the following guidelines:

- The 5-year RPM experience requirement should be obtained during work as a full-time professional health physicist. One-half credit is allowed for nuclear Navy radiation protection experience.

- The prospective RPM should have participated in at least one refueling or special maintenance outage (2-3 months) at a commercial power reactor which included supervising and directing the work activities of health physics technicians.

- The prospective RPM should be thoroughly familiar with the essential features of a power reactor radiation protection program.

- No credit would be allowed during time spent as the training manager.

The NRC inspectors noted that CNS health physics staff presently includes three individuals that could satisfy Regulatory Guide 1.8 qualifications for a RPM. It was, therefore, concluded that there was expertise onsite and that the issue was how to improve the commercial experience level of the current incumbent rapidly.

The NRC's concerns regarding the lack of a commercial experienced RPM were discussed during the exit interview on August 2, 1984. The NRC inspectors stated that NPPD would be requested to respond, in writing, regarding their actions to upgrade the RPM's commercial experience. The RPM would typically be responsible for the following health physics program activities:

- directing the work activities of the health physics staff,

- review and approval of health physics procedures,

- review and approval of work performed by the health physics staff, and

- participation in the plant review committee meetings.

The licensee stated that they assumed the current chemistry and health physics supervisor was qualified. They thought nuclear Navy experience would be accepted on a one-to-one basis and full credit would be allowed during the time spent as the training manager. The NRC inspectors acknowledged that NRC's position statements for the evaluation of previous experience may not have been provided to licensees.

This item (298/8416-01) is considered open pending followup action by the licensee.

b. Contractor Staffing

The NRC inspectors reviewed preplanning arrangements to supplement the existing health physics staff with contractor support personnel. The licensee stated that they plan to have 14 additional ANSI qualified health physics technicians onsite during the outage to assist the CNS staff. The NRC inspectors noted that, considering the amount of work to be accomplished during the outage, 14 contractors appeared to be a minimum number of health physics support personnel. During the exit interview on August 2, 1984, it was suggested that

the licensee carefully review their planned outage activities to ensure that an adequate number of health physics personnel are available to provide proper job coverage.

No violations or deviations were identified.

4. Radiation Protection Plan

The NRC inspectors reviewed a draft copy of the proposed radiation protection plan developed specifically for the replacement of the recirculation piping. The plan addressed such areas as organization, ALARA, exposure control, facilities and equipment, training, waste disposal, procedures, and assignment of responsibilities. The following observations were noted:

- CB&I ALARA Group

The radiation protection plan assigns several ALARA responsibilities to the CB&I ALARA group. This group is to consist of five individuals which will be responsible for ALARA activities for approximately 300-350 CB&I workers. At the time of this inspection, three of the five CB&I ALARA staff members were onsite. The NRC inspectors met with two individuals from the ALARA group to discuss their responsibilities during the outage. These discussions revealed that two of three individuals had no previous technical training or experience in radiation protection. The other individual had worked as an industrial radiographer, but had only limited experience at power reactors. No one in the onsite CB&I ALARA group had any previous experience regarding radiation protection problems associated with the replacement of BWR recirculation piping.

The NRC inspectors expressed concerns related to the lack of radiation protection experience among the CB&I ALARA group at the exit interview on August 2, 1984. The NRC inspectors stated that it is NPPD's responsibility to ensure that their contractors are properly qualified to perform the assigned work.

- Staffing

The licensee stated that plans call for supplementing the CNS health staff with 14 additional radiation protection technicians. However, staffing and personnel qualification were not discussed in the draft radiation protection plan.

- Job Briefings

The plan mentions that job briefings will be held at the beginning and termination of each job. However, the plan does not require that

daily or shift job briefing will be held for those jobs that extend over several days.

_ Alpha-Beta Surveys

The plan does not include requirements for alpha-beta surveys, beta personnel monitoring, or personnel monitoring in nonuniform radiation fields.

_ Instrumentation, Equipment, and Supplies Inventory

The plan does not include a list of available health physics instrumentation and equipment; e.g., survey meters, portable filter units, remote radiation monitors, respiratory protection, counting equipment, anti-C clothing, etc.

A licensee representative stated that the above items would be included in the final radiation protection plan. This item (298/8416-02) is considered open pending followup action by the licensee.

No violations or deviations were identified.

5. Good ALARA Practices

The NRC inspectors noted that the licensee had included several special good ALARA practices. These included:

_ Preconditioning of New Recirculation Piping

CNS has maintained one of the lowest man-rem exposure histories among BWRs. Much of their success is attributed to maintaining a low level of impurities in the reactor coolant water. The NRC inspectors noted that the licensee plans to implement an extensive new pipe preconditioning program in order to reduce the buildup of crud material after reactor startup.

_ Chemical Decontamination

The licensee plans to decontaminate the inside surfaces of piping by circulating a chemical decontamination solution through the piping prior to beginning pipe removal procedures.

_ Mockup Training

A mockup of the recirculation piping arrangement will be available onsite for worker training prior to their entry into the drywell.

- Remote Video System

  Several video cameras will be installed in the drywell with monitors located near the access control point to permit remote observation of worker activities.

6. Exit Interview

The NRC inspectors met with the individuals identified in paragraph 1 on August 2, 1984. The NRC inspectors summarized the scope and findings of the inspection. The NRC inspectors stated that the licensee would be requested to respond in writing concerning their actions to fill the chemistry and health physics supervisor position with a properly qualified individual.