

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-298/90-12

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, Brownsville, Nebraska

Inspection Conducted: March 26-30, 1990

Inspector: Blaine Murray 5/11/90
for L. T. Ricketson, P.E., Radiation Specialist Date
Facilities Radiological Protection Section

Approved: Blaine Murray 5/11/90
B. Murray, Chief, Facilities Radiological Date
Protection Section

Inspection Summary

Inspection Conducted March 26-30, 1990 (Report 50-298/90-12)

Areas Inspected: Routine, unannounced inspection of selected areas in the radiation protection program during the 1990 refueling outage.

Results: The licensee had provided proper planning and preparation for the outage. Health physics (HP) staffing appeared to be thin due to a strike conducted by some of the contract HP technicians, but HP coverage was still determined to be adequate. One apparent violation was identified concerning a contract senior HP technician that did not to have sufficient experience (see paragraph 7). HP supervisors appeared well qualified. Personnel contamination controls were good; however, procedures for the control of such items as tools used in contaminated areas were being established to address the release of items from the radiological controlled area (RCA). No deviations were identified.

DETAILS

1. Persons Contacted

NPPD

- *G. R. Horn, Division Manager, Nuclear Operations
- *J. V. Sayer, Radiological Manager
- *R. L. Beilke, Radiological Support Supervisor
- T. J. Chard, Health Physics (HP) Supervisor
- *B. L. Hall, Health Physicist
- T. E. Carson, ALARA Coordinator
- D. P. Oshla, Lead HP Technician
- D. A. Jones, Lead HP Technician
- *R. Gardner, Maintenance Manager
- *G. R. Smith, Licensing Supervisor

In addition, the inspector interviewed HP technicians and maintenance workers during the course of the inspection.

NRC

- *W. R. Bennett, Senior Resident Inspector
- *G. A. Pick, Resident Inspector

*Denotes those present at the exit meeting on March 30, 1990.

2. Followup on Previous Inspection Findings

(Closed) Violation (298/8916-01): Failure to Follow Procedures - This item was identified in NRC Inspection Report 50-298/89-16 and involved an individual's failure to follow a procedure concerning contaminated area controls. The individual passed a piece of conduit into a contaminated area and subsequently received it back without bagging the item or wearing gloves to guard against the spread of contamination. The licensee corrective action included increased surveillance of outage workers activities. The inspector noted an increased level of policing of the controlled areas by the HP staff. The NRC has no further questions in regard to this matter.

3. Open Items Identified During this Inspection

An open item is a matter that requires further review and evaluation by the inspector, such as an item pending specific action by the licensee or a previously identified violation, deviation, unresolved item, or programmatic weakness. Open items are used to document, track, and ensure adequate followup on matters of concern to the inspector. The following open item was identified:

<u>Open Item</u>	<u>Title</u>	<u>Paragraph</u>
298/9012-02	Radiological Controlled Area Procedures	10

4. Observations

The following are observations the inspector discussed with licensee's representatives. The observations are not violations, deviations, unresolved items, or open items. Observations are identified for licensee consideration as program improvement items, but have no specific regulatory requirement.

Outage Exposure Records

Radiation exposures were not discussed at the daily outage planning meetings (see paragraph 5).

Prejob Briefings

ALARA packages did not contain information discussed in prejob briefings (see paragraph 11).

5. Advanced Planning and Preparation

The inspector discussed the preparation for the refueling outage with licensee representatives and determined that the following had been implemented:

Four radiation protection (RP) technicians were assigned as liaisons with the departments performing maintenance and modifications. This arrangement had helped to eliminate many errors in communication and served to keep HP informed as to the progress and needs of the outage work.

All planned work packages were submitted in a timely manner to allow review by ALARA personnel prior to the beginning of the outage.

Mock-up training was performed in preparation for such items as drainline hot spot shielding and residual heat removal (RHR) system valve work.

Films were shown of vessel teardown and control rod drive (CRD) rebuild to orient maintenance workers and HP staff members.

The inspector attended an outage meeting conducted by the outage manager and noted that there was a free exchange of information and that meetings were conducted in an orderly manner. The inspector reviewed a copy of the weekly report in which the exposures of the various departments were

listed. The inspector observed that updates on accumulated radiation exposures or ALARA goals for the various departments were not discussed at the daily meetings.

No violations or deviations were identified.

6. Staffing

The inspector reviewed the licensee's staffing to determine agreement with Technical Specifications (TS) 6.1.3 and Chapter XIII of the Final Safety Analysis Report (FSAR).

The licensee had added the position of radiological advisor to the Radiological Department. The inspector reviewed the position description and noted that duties included: providing technical support for the evaluation of issues such as source terms, shielding needs, dose calculations, and maintaining current knowledge of industry events and practices and regulatory concerns.

The licensee also added the position of radioactive material shipping technicians to aid the senior chemist and health physics specialist, who had responsibility for radioactive shipments.

The licensee hired approximately 27 contract HP technicians (15 seniors and 12 juniors) to supplement the permanent plant staff technicians during the outage. Approximately five of these individuals supported a strike effort by contract HP technicians. The licensee terminated these five contractors during late March 1990. In order to compensate for this loss of technicians, the licensee temporarily reassigned to HP personnel from training and chemistry who previously worked as senior health physics technicians.

No violations or deviations were identified.

7. Training and Qualifications

The inspector reviewed the training and qualifications of the licensee's radiation protection staff and contract RP technicians to determine compliance with TS 6.1.4.

The inspector did not identify any problems concerning the licensee's permanent plant staff. However, the inspector identified one contractor in a senior radiation protection position that did not have the required experience. TS 6.1.4 requires that personnel shall meet the criteria in ANSI N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel." Section 4.5.2 of ANSI N18.1-1971 states that technicians in responsible positions shall have a minimum of 2 years of working experience in their speciality. The 2 years of experience involves 4000 hours of radiation protection experience obtained in not less than 80 weeks.

During the review of the contractor's resume, the inspector noted that the licensee had credited the individual with 5100 hours of radiation protection experience. The experience included 2500 hours as a junior radiation protection technician and 2600 hours while performing decontamination duties. The inspector questioned the licensee about the duties the individual performed while involved with decontamination work. The inspector determined that during this time, the individual was working in the maintenance department performing routine decontamination work such as decontaminating floors and handling contaminated equipment. The individual had not received formal radiation protection technician training while assigned to the maintenance department nor did his duties involve routine radiation protection work. The inspector noted that the licensee has not established a written procedure that addresses selection criteria for contractor radiation protection technicians. The inspector determined that only the 2500 hours spent as a junior radiation protection technician should be allowed as radiation protection experience. Therefore, the contract technician did not have 2 years of HP experience before being assigned as a senior radiation protection technician. The failure to have qualified personnel in senior radiation protection positions is considered an apparent violation of TS 6.1.4 (298/9012-01).

No deviations were identified.

8. External Radiation Exposure Control

The inspector reviewed the licensee's external exposure control program to determine compliance with TS 6.3.4; 10 CFR Parts 19.12, 20.101, 20.102, 20.105, 20.202, and 20.203; and agreement with the recommendations of Industry Standard ANSI N323-1978.

The inspector observed jobs in progress in the RCA to evaluate radiological protection practices. The inspector noted that all personnel observed in the RCA had proper personnel monitoring and that the licensee used multiple dosimetry badging during the removal of control rod drives and alarming dosimeters for certain activities in the drywell. The inspector reviewed survey results of selected areas and performed independent confirmatory measurements. The inspector verified that an adequate supply of radiation survey instruments were available and that selected examples were properly calibrated and response tested. The inspector reviewed area posting and controls. The inspector also reviewed personnel exposure records and determined that all required records were present and that none of the individuals reviewed had exceeded allowable exposure limits.

No violations or deviations were identified.

9. Internal Exposure Controls

The inspector reviewed the licensee's internal exposure controls program to determine compliance with the requirements of 10 CFR Part 20.103 and agreement with the recommendations of NRC Regulatory Guide (RG) 8.15, NUREG-0041, and Industry Standard ANSI Z88.2-1980.

The inspector reviewed the licensee's program concerning the issuance, cleaning, and storage of respiratory protection equipment. The inspector did not identify any specific violations, but the inspector noted that the respirator cleaning and storage areas appeared cramped. The area did not lend itself to ensuring positive control over respirators, since part of the storage area was open to a stairwell, thus putting some respirators within reach of anyone, regardless of respirator qualification status. In addition, the inspector found that the door into the area was not maintained locked when unattended.

The inspector reviewed the respirator issue log at the drywell control point and verified the qualifications of selected individuals using respirators. Additionally, the inspector verified that the respirators worn by these individuals had been inspected and maintained as required.

The inspector verified that the licensee had established an adequate airborne survey program of work areas by use of portable air samplers and continuous air monitors.

The licensee has a compressor for filling SCBA bottles. The inspector verified that the licensee performs checks to ensure that the bottled air provided meets Grade D standards as outlined by ANSI/CGA G-7.1-1989.

The licensee had masks in three sizes and was able to successfully fit all workers attempting to qualify for respiratory protection equipment. According to the licensee's respiratory protection program, in order to qualify, an individual must have completed: an annual physical examination, requalification training, and mask fit testing. The licensee's HP Procedure 9.1.5, "Respiratory Protection," requires requalification training every 2 years. Fit testing is linked to the requalification training and therefore is performed on the same 2-year interval. The inspector pointed out that Industry Standard ANSI Z88.2-1980 recommends that requalification training and fit testing be performed annually. The licensee's representatives stated in the exit meeting that they would evaluate the inspector's comments.

The licensee issued cards to individuals designating them as qualified for respiratory protection use. Individuals then were normally required to show the card before being issued a respirator. The licensee's representatives stated that individuals did not always have the cards with them. In these cases, qualifications had to be checked by phoning from the issue point to dosimetry, where copies of the individuals' qualification files were kept, and a manual search was conducted. The

inspector reviewed selected examples of these files using names copied from the respirator issue log. All individuals checked were qualified in accordance with the licensee's respiratory protection program.

The licensee had not identified, by means of whole body counting, any cases of ingestion of radioactive contamination for the period January 1 through March 30, 1990.

No violations or deviations were identified.

10. Control of Radioactive Material and Contamination

The inspector reviewed the licensee's programs for controlling radioactive materials to determine compliance with TS 6.3.4 and 10 CFR Parts 20.201 and 20.207.

The licensee had, during early 1990, revised their plant layout with a new RCA arrangement. Some of the areas included in the RCA are: the reactor area, turbine generator area, control room, heater bay, condenser area, radwaste area, and multipurpose facility. The number of exits (for other than emergency use) has been reduced. High sensitivity personnel contamination monitors (PCMs) are at each exit and their use is required by all exiting personnel. The inspector observed the procedure used by individuals leaving the RCA and did not identify examples of personnel failing to use the PCM.

The inspector noted that the licensee did not have tool monitors nor other means for a final radiological survey for items leaving the RCA. Procedures for bagging and removing items from the individual contaminated areas within the RCA were still in effect and the inspector observed random examples and noted that the procedure was followed. The licensee's representatives stated that the new RCA arrangement had not been completely implemented and that procedures would be established to address the release of items from the RCA. The licensee's program for control of items leaving the RCA is considered an open item pending further NRC review (298/9012-02).

Approximately 29 percent of the licensee's facility was considered a contaminated area according to the last report given to Region IV. This amount of contaminated area is considered above that usually found at a reactor facility. Licensee representatives pointed out that they use a limit of 100 disintegrations per minute (dpm)/100 cm² to designate contaminated areas as opposed to the more commonly used limit of 1000 dpm/100 cm². The licensee's representatives stated that they could assemble data which would show the amount of area with contamination levels between 100 and 1000 dpm, thereby normalizing the figures to those of other facilities. The licensee had a 12-man crew of workers dedicated to decontaminating and reclaiming areas within the RCA.

The inspector noted that the licensee required workers to use two sets of protection clothing (PC), in an effort to reduce the number of personnel contamination events. Between January 1 and March 24, 1990, the licensee had identified about 100 personnel contamination events.

The inspector noted that the use of double PC was apparently causing the buildup of contaminated laundry. Even with the increased usage, the licensee appeared to have sufficient supplies of PC to meet the demand. Two laundry monitors were used for checking PC after washing. Contamination controls were in effect in the laundry monitoring area.

Since double PC were used, the step off pad at the drywell and the undressing procedure were changed slightly from previous years. Even though the clothing receptacles were clearly marked, some individuals had difficulties following undressing procedures. However, the inspector noted on several occasions that HP technicians alertly stopped individuals having difficulty and instructed them in the proper procedures.

The inspector reviewed the licensee's hot particle program. The licensee's representatives informed the inspector on March 28, 1990, that they had identified a hot particle resulting in personnel exposure. The particle was a 13-microcurie cobalt-60 source. Using the VARSKIN computer program, the licensee calculated the dose to one square centimeter of skin to have been 894 millirem.

No violations or deviations were identified.

11. ALARA

The inspector reviewed selected ALARA packages developed for outage jobs. All packages for scheduled work were completed prior to the start of the outage. The packages examined included copies of the maintenance work order, ALARA checklists, man-hour estimates, expected exposure rates, previous lessons learned, and prejob briefing attendance lists. The inspector observed that prejob briefing notes were not included as part of the package. Licensee representatives stated that the ALARA coordinator typically presented the briefing, using the ALARA checklist as guidance, and that the inclusion of more formalized notes would be considered as a standard part of future packages.

Jobs estimated at more than 5 person-rem were reviewed by the ALARA committee. The inspector noted that, as of the time of the inspection, six ALARA packages had been developed for jobs expected to exceed 5 person-rem.

The licensee had set a goal of 250 person-rem for the outage which began March 5, 1990. Through the third week, the total exposure was approximately 100 person-rem.

No violations or deviations were identified.

12. Exit Meeting

The inspector met with the resident inspector and the licensee's representatives denoted in paragraph 1 at the conclusion of the inspection on March 30, 1990, and summarized the scope and findings of the inspection as presented in this report. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during the inspection.