

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-298/85-04

License: DPR-46

Docket: 50-298

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

Facility Name: Cooper Nuclear Station (CNS)

Inspection At: Cooper Nuclear Station, Brownville, Nebraska

Inspection Conducted: January 28 - February 1, 1985

Inspectors:

R. E. Baer
R. E. Baer, Radiation Specialist, Facilities
Radiological Protection Section

2/28/85
Date

B. Murray
B. Murray, Chief, Facilities Radiological
Protection Section

2/28/85
Date

Approved:

R. E. Hall
R. E. Hall, Chief, Emergency Preparedness and
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3/5/85
Date

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J. P. Jaudon, Chief, Reactor Projects Section A

3/14/85
Date

Inspection Summary

Inspection Conducted January 28 - February 1, 1985 (Report 50-298/85-04)

Areas Inspected: Routine, unannounced inspection of the licensee's radiation protection program including: organization and management controls, training and qualifications, ALARA program, control of radioactive materials and

contamination, and licensee's action on previously identified open items. The inspection involved 78 inspector-hours onsite by one NRC inspector and the Chief, Facilities Radiological Protection Section.

Results: Within the areas inspected, no violations or deviations were identified.

DETAILS

1. Persons Contacted

NPPD

- *P. V. Thomason, Nuclear Operations Division Manager
- *R. L. Beilke, Chemistry and Health Physics Supervisor
- *L. E. Bray, Administrative Secretary
- R. D. Brown, Instrument and Controls Foreman
- R. Drier, General Employee Trainer
- K. Fike, Chemistry Technician
- G. R. Horn, Construction Manager
- C. L. Kern, Quality Assurance Specialist
- R. W. Krause, Engineer
- J. Kuttler, Health Physicist
- R. J. McDonald, Assistant to Chemistry and Health Physics Supervisor
- *J. M. Meacham, Technical Manager
- J. Mehser, Radwaste Operator
- P. Morris, ALARA Coordinator
- *D. L. Reeves, Training Supervisor
- *J. Sayer, Senior Technical Radiological Advisor
- F. Schaaf, Construction Technical Supervisor
- *G. E. Smith, Senior Quality Assurance Specialist
- *D. Snyder, Chemistry Technician

Others

- L. F. Adams, Senior Health Physics Technician, Institute for Resource Management (IRM)
- R. R. Peak, ALARA Specialist, Chicago Bridge & Iron (CB&I)
- J. A. Pritchard, ALARA/Safety Coordinator CB&I
- J. C. Swanson, Chemistry/Health Physics Instructor, General Electric
- R. Tabor, ALARA Specialist, Bartlett Nuclear Inc.
- D. M. Truman, Senior Health Physics Technician, IRM
- *D. L. DuBois, NRC Senior Resident Inspector

*Denotes those present during the exit interview on February 1, 1985.

The NRC inspectors also interviewed several other licensee and contractor employees including health physics, maintenance, and construction personnel.

2. Licensee Action on Previous Inspection Findings

(Closed) Open Item (298/8232-04): Calibration of Whole Body Counter - This item was identified in NRC Inspection Report 50-298/8232 and involved the lack of a proper calibration program for the whole body counting system. The NRC inspectors reviewed revisions made to Procedure 9.1.8,

"Bio-Assay and Whole Body Counting," Revision 11, dated October 23, 1984. The licensee's current calibration program is considered adequate to resolve the NRC's concerns.

This item is considered closed.

(Closed) Open Item (298/8232-07): Installation of High Range Noble Gas Effluent Monitors - This item was identified in NRC Inspection Report 50-298/8232 and involved the pending installation of the instrumentation required in NUREG-0737, Item II.F.1, Attachment 1. The NRC inspectors reviewed the licensee's actions to resolve this item and determined that the required instrumentation had been installed.

This item is considered closed.

(Closed) Open Item (298/8232-08): Sampling and Analysis of Plant Effluents - This item was identified in NRC Inspection Report 50-298/8232 and involved the pending installation of the instrumentation required in NUREG-0737, Item II.F.1, Attachment 2. The NRC inspectors determined that the necessary sampling equipment had been installed.

This item is considered closed.

(Closed) Open Item (298/8232-09): Postaccident Sampling System (PASS) - This item was identified in NRC Inspection Report 50-298/8232 and involved the installation of the PASS instrumentation required in NUREG-0737, Item II.B.3. The NRC inspectors determined that the necessary instrumentation had been installed and tested.

This item is considered closed.

(Closed) Violation (298/8232-01): Radioactive Waste Shipment - This item was identified in the Notice of Violation regarding NRC Inspection Report 50-298/8232 and involved a shipment of radioactive waste which exceeded regulatory dose rate limits. The NRC inspectors determined that the licensee's corrective actions had been implemented.

This item is considered closed.

(Closed) Violation (298/8232-02): Respiratory Equipment Medical Examination - This item was identified in NRC Inspection Report 50-298/8232 and involved the failure to have a physician determine the fitness of respiratory protection equipment users. The NRC inspectors determined that the licensee's corrective action had been implemented.

This item is considered closed.

(Closed) Deviation (298/8232-01): Radwaste Personnel Training - This item was identified in NRC Inspection Report 50-298/8232 and involved the failure to conduct training as specified in IE Bulletin 79-19. The NRC

inspectors determined that the licensee's corrective actions had been implemented.

This item is considered closed.

(Closed) Violation (298/8406-01): High Radiation Areas - This item was identified in NRC Inspection Report 50-298/8406 and involved the failure to properly control access into high radiation areas. The NRC inspectors determined that the licensee's corrective actions had been implemented.

This item is considered closed.

(Closed) Violation (298/8406-02): Radiation Control Procedures - This item was identified in NRC Inspection Report 50-298/8406 and involved the failure to follow the requirement in radiation control procedures. The NRC inspectors determined that the licensee's corrective actions had been implemented.

This item is considered closed.

(Closed) Open Item (298/8416-01): Radiation Protection Manager (RPM) Qualifications - This item was identified in NRC Inspection Report 50-298/8416 and involved the qualifications of the new RPM. The NRC inspectors determined that the agreement reached between the NRC and the licensee is adequate to resolve this item. (Refer letter - E. H. Johnson, NRC, Region IV, to J. M. Pilant, NPPD dated December 21, 1984.)

This item is considered closed.

3. Open Items Identified During This Inspection

<u>Open Item</u>	<u>Description</u>	<u>Reference Paragraph</u>
298/8504-01	<u>High Range Noble Gas Effluent Monitor Calibration Data</u>	4.a.
298/8504-02	<u>High Range Noble Gas Effluent Monitor Concentration Units</u>	4.a.
298/8504-03	<u>High Range Noble Gas Effluent Monitor Plateout and Deposition Studies</u>	4.b.
298/8504-04	<u>Management Policy Statement Radiation Protection Program</u>	5.b.
298/8504-05	<u>ALARA Checklist for QA Audits</u>	5.c.
298/8504-06	<u>Management Policy Statement ALARA Program</u>	6.
298/8504-07	<u>Health Physics Department Training</u>	7.c.

4. NUREG-0737 Requirements

The NRC inspectors reviewed the licensee's program to determine compliance with certain portions of NUREG-0737 requirements. The following concerns were noted:

- a. Item II.F.1, Attachment 1, "High Range Noble Gas Effluent Monitors" - The NRC inspectors reviewed the licensee's calibration program associated with these monitors. Even though these monitors are routinely surveillance tested using a vendor supplied transfer source the monitors had neither been calibrated in-place after installation using radiogases, nor was the licensee able to locate the necessary documentation to verify that a proper calibration had been performed at the vendor facility prior to shipment. The licensee stated at the exit interview on February 1, 1985, that either: (1) the monitors would be calibrated in-place with gas standards, or (2) the necessary documentation would be obtained from the vendor to verify that a proper calibration was performed prior to shipment. This item is considered open (50-298/8504-01) pending resolution of the above concern.

The licensee's current calibration data sheets record results in CPM (counts-per-minute). NUREG-0737 specified that monitors indicate results in units of uCi/cc up to $1E+05$ uCi/cc. The NRC inspectors reviewed the raw calibration data, the steps involved in converting CPM into uCi/cc, and interviewed personnel responsible for calibrating the monitors. This review indicated that the monitors were calibrated over their intended range. However, the NRC inspectors were not able to determine the monitors response in units of uCi/cc based on the information recorded on the calibration data sheets. The licensee stated at the exit interview on February 1, 1985, that the present calibration sheets will be revised to show results in concentrations of uCi/cc. This item is considered open (50-298/8504-02) pending resolution of the above concern.

The licensee stated that both of the above concerns will be resolved prior to reactor startup.

- b. Item II.F.1, Attachment 2, "Sampling and Analysis of Plant Effluents" - The NRC inspectors reviewed the installation and testing of the above sampling equipment. The licensee had not performed an evaluation to determine the amount of sample that is lost due to plateout and deposition in the sample lines. NUREG-0737 recommends that line losses should be evaluated based on the guidance in ANSI N13.1-1969. The licensee stated during the exit interview on February 1, 1985, that sample line losses will be evaluated prior to reactor startup. This item is considered open (50-298/8504-03) pending completion of the licensee's planned evaluation.

5. Organization and Management Controls

The NRC inspectors examined the licensee's onsite organization regarding radiation protection management to determine compliance with the Updated Safety Analysis Report (USAR) and Technical Specifications (TS) commitments, and recommendations of Regulatory Guide 8.8.

a. Organization

The NRC inspectors determined that the licensee had not made any onsite organizational changes since the last inspection. The present organization is as described in the TS.

b. Management Controls

The NRC inspectors discussed with licensee representatives corporate involvement with the onsite organization and whether management had issued a written statement to support the radiation protection program as recommended by Industry Standard ANSI N18.7-1976. The corporate overview is provided by the Safety Review and Audit Board. The licensee was unable to provide a written statement issued by management that described the intent of the radiation protection program, the importance of its implementation and general responsibilities, and the management system for program implementation, maintenance, and evaluation as recommended in ANSI 18.7-1976. This item is considered open (50-298/8504-04) pending issuance of a corporate radiation protection policy statement. The licensee stated during the exit interview on February 1, 1985, that a management radiation protection policy statement would be issued within 3 months.

c. Audits

The NRC inspectors reviewed Audit 84-22 conducted in November 1984, in accordance with Procedure QAP-900, "Quality Assurance Plan Chemistry, Health Physics and Environmental Monitoring," Revision 7, April 5, 1984. The NRC inspectors noted that this audit included some elements of the ALARA program and two observations noted during this audit were directed toward this program; however the procedure and checklist did not include the ALARA areas addressed in the audit. The NRC inspectors discussed with licensee representatives the need for revision of the audit checklist used to support audits conducted in accordance with procedure QAP-900 to include ALARA program elements. This item is considered open (50-298/8504-05) pending revision of QAP-900 checklist. The licensee stated during the exit interview on February 1, 1985, that the QAP-900 checklist would be revised within 3 months.

d. Procedures

The NRC inspectors reviewed station health physics procedures and procedure records to ensure that a review had been performed on a 2 year frequency as required by TS. The NRC inspectors determined that all health physics procedures appeared to have been reviewed in a timely manner.

e. Reports

The NRC inspectors reviewed selected records to verify reports and notifications required by 10 CFR Parts 19.13(d), 20.402, 20.403, 20.405, 20.408, 20.409, 50.72, and 50.73, had been prepared and submitted in a timely manner. The NRC inspectors reviewed licensee event reports (LER) issued during the period January 1, 1984 to January 1, 1985. The licensee had issued two LERs which involved radiological conditions: 84-006 involved the off-gas stack sampler sampling air from the off-gas filter building rather than from the plant stack, and 84-008 involved a radioactive liquid discharge that was not continuously monitored. These reports were submitted within the appropriate time required.

No violations or deviations were identified.

6. Maintaining Occupational Exposures ALARA

The NRC inspectors reviewed the licensee's ALARA program to determine compliance with USAR commitments and recommendations of RGs 8.8, 8.10, 8.19, NUREG/CR-3254 and 0761.

Licensee developed Procedure 9.1.1.2, "ALARA Program," Revision 1, December 29, 1983, designated an individual ALARA coordinator, developed a dose tracking system by job and task, and implemented an ALARA committee for the recirculation piping replacement project. The licensee had not issued a policy statement and commitment to an ALARA program. The policy statement should describe the intent of the program, the importance of its implementation and general responsibilities, the program goals and how specific milestones for their achievement are to be established, and the management system for program implementation, maintenance, and evaluation. This item is considered open (50-298/8504-06) pending issuance of the corporate ALARA policy statement. The licensee stated at the exit interview on February 1, 1985, that a management policy statement pertaining to the ALARA program would be issued within 3 months.

The NRC inspectors discussed with licensee representatives the continuation of the dose tracking system and ALARA committee for day-to-day operation. The licensee stated that the dose tracking system would be continued during normal plant operations but the ALARA committee would not. The licensee stated that evaluations would be performed on all jobs which required the expenditure of 2 man-rem or more. These evaluations will be performed by the ALARA coordinator and shop supervisor which will also include the feasibility of mock-up training.

The NRC inspectors noted the ALARA coordinator was not included in the review process for proposed design changes or station modifications. The licensee had an ALARA checklist, Form HP-800, for tracking critical elements of each job greater than 0.5 man-rem but did not document any post job briefing. The licensee stated post job briefings were conducted. The NRC inspectors also noted that Procedure 9.1.1.2 stated that large discrepancies in man-rem expended versus expected on a job would be investigated and documented on the Form HP-800. The licensee stated that 50 percent is presently used as the criteria for large discrepancies.

Table 1 (attached) depicts the licensee's previous 5 year history for radiation exposure, man-rem expended versus the national average for boiling water reactors.

Table 2 (attached) depicts the radiation exposure, man-rem expended for the recirculation piping replacement program during 1984. Only jobs requiring more than 10 man-rem are listed.

No violations or deviations were identified.

7. Training and Qualifications

The NRC inspectors reviewed the licensee's radiation protection training program to determine compliance with USAR commitments, 10 CFR Part 19.12 requirements, and recommendations of NUREG-0761, RGs 4.15, 8.8, 8.10, 8.27, and 8.29.

a. General Employee Training (GET)

The NRC inspectors evaluated the GET program which is conducted for all new personnel assigned to the station. The licensee has been in the process of revising the GET program to include those elements identified in NRC Inspection Reports 50-298/82-32 and 50-298/84-12. The licensee stated that lesson plans had been drafted that included these elements and that they are included in the GET presentation.

b. Radiation Worker Training

The licensee's radiation worker training consists of the GET training course with the addition of a practical factors segment where individuals demonstrate suit: up and removal of protective clothing. The NRC inspectors discussed with licensee representatives the desirability to also include the removal of respiratory protection devices during this training session. Respiratory protection training is a special segment for radiation worker training and is provided on an as needed basis.

c. Health Physics Department Training

The NRC inspectors reviewed training provided for health physics (HP) supervisors, technical personnel, and technicians. The HP technicians had completed a 2 week course covering basic

principals of health physics in 1984. The NRC inspectors noted that additional training was also being provided in other selected areas on an ad hoc basis; however, the licensee had not developed a formalized training program for plant specific elements, plant systems, procedures, plant equipment, and a retraining schedule for HP supervisors, HP technical personnel, and HP technicians. This item is considered open (50-298/8504-07) pending licensee implementation of a formalized training/retraining program for HP personnel.

d. Audits

The NRC inspectors discussed with licensee representatives the status of audits performed on training programs. The licensee stated that Procedure QAP-2700 had been drafted and checklists were being completed. An audit of the licensee's station training programs had started the week of January 28, 1985, and was ongoing at the time of this inspection. This audit will be reviewed at a future inspection.

No violations or deviations were identified.

8. Exit Interview

The NRC inspectors met with the licensee representatives identified in paragraph 1 of this report and the Senior Resident Inspector at the conclusion of the inspection on February 1, 1985. The NRC inspectors summarized the scope of the inspection. The licensee committed to the resolution of open items identified in paragraph 3 of this report. The licensee stated that management had previously committed to have all training programs accredited by the Institute of Nuclear Power Operations by December 1986.

TABLE 1

Man-Rem Expended During Last 5 Years

Year	1980	1981	1982	1983	1984
BWR Average	1136.0	957.0	940.0	1056.0	Not available
Cooper Station	820.0	544.0	506.0	1293.0	743.0*

*155 man-rem normal operation, 588 man-rem recirculation pipe work.

TABLE 2

<u>Job Description</u>	<u>Man-Rem</u>
Start Verification of Walkdown	21.086
Insulation Removal - Pre-Decon	12.957
Drywell Support Activities	40.760
Temporary Support of Valves and Pumps	34.129
Protect System - During Decon	16.204
Install Rigging - Pre and During Decon	12.443
Isolate and Tap Recirculation Systems for Decon	64.280
1001' Level Work	25.244
Removal of Pipe Supports - During Decon	30.112
Decon of Systems	14.199
Temporary Supports for Risers and Header	12.140
Supervision for Work - Pre and During Decon	32.803
Fire Watch - Pre and During Decon	10.781
Install Scaffolds for Insulation Removal Pre-Decon	51.924
Remove "A" Suction to Pump and RHR	14.417
Remove "A" Loop Cross and Header	13.307
Remove "A" Loop 12" O Riser from Header to Safe End	13.845
Continuous General Decon	21.387
Supervision for Removal	57.585
Install Pipe Scaffold Pipe Removal	10.378
April Walkdown Exposure	14.300
Insulation Removal RHR System	15.087