

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-298/84-06

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: April 2-6, 1984

Inspector:


H. B. Chaney, Radiation Specialist

4/30/84
Date

Approved:


Blaine Murray, Chief, Facilities Radiation
Protection Section

4/30/84
Date


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

5/3/84
Date

Inspection Summary

Inspection Conducted April 2-6, 1984 (Report 50-298/84-06)

Areas Inspected: Routine, unannounced inspection of the licensee's radioactive waste (radwaste) systems including liquid and gaseous effluent releases, records and reports of radioactive effluents, procedures for controlling effluent releases, testing of air cleaning systems, reactor coolant water quality, solid radwaste program, training of radwaste operations personnel, and audits performed by the licensee. The inspection involved 41 onsite hours by one NRC inspector.

Results: Within the nine areas inspected, two violations were identified in one area (high radiation area control and procedural compliance [see paragraph 13]).

DETAILS

1. Persons Contacted

NPPD

- *P. Thomason, Nuclear Operations Division Manager
- B. Beilke, Training Manager
- J. Boyd, Senior Reactor Operator
- G. Bray, Auxiliary Equipment Supervisor
- M. Edgerton, Shift Supervisor
- R. Faust, Radwaste Systems Engineer
- R. Gardner, Surveillance Coordinator
- *C. Goings, Regulatory Compliance Specialist
- G. Ketner, Lead Chemistry Technician
- J. Kuttler, Health Physicist
- *R. McDonald, Chemistry and Health Physics Supervisor
- C. McElfresh, Auxiliary Equipment Operator (AO)
- *J. Meacham, Technical Manager
- J. Mesher, Radwaste Operator
- J. Sayer, Staff Assistant
- D. Snyder, Chemistry Technician
- *J. Warren, Chemist
- K. Wire, Operations Manager
- *V. Wolstenholm, Quality Assurance Manager

*Denotes those present during the exit interview.

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

2. Scope of Inspection

The purpose of this inspection was to review the licensee's radwaste systems and effluent releases for the period August 1, 1983, to March 31, 1984.

3. Licensee Action on Previous Inspection Findings

(Closed) Open Item (298/8202-02): Charcoal Adsorber Tests - The licensee had resolved the NRC's concerns regarding allowable temperature range during adsorber testing by submittal of a Technical Specifications (TS) amendment request changing the value to 430°C. This item is considered closed.

(Closed) Open Item (298/8202-03): Surveillance Tests for Nontechnical Specification Filter Systems - The licensee had implemented a testing program that satisfies the recommendations of NRC Regulatory Guide 1.140 for the Technical Support Center and Emergency Operations Facility HEPA

filter and charcoal systems. This action closes out the remaining NRC concerns regarding tests for nontechnical specification filter and charcoal adsorber systems. See paragraph 12 for details. This item is considered closed

4. Management Controls and Organization

The NRC inspector reviewed the licensee's radwaste program to determine compliance with commitments in the Updated Safety Analysis Report (USAR). This review included organizational changes since the last radwaste inspection (NRC Inspection Report 50-298/83-19).

The NRC inspector determined that the licensee had implemented and staffed a new position of radwaste systems engineer within the plant engineering section. The position is staffed with a full time engineer that is experienced on CNS radwaste systems. Routine staffing for operation of the various radwaste systems is one auxiliary equipment supervisor and two full time radwaste equipment operators with assistance from station operators as required.

A review was conducted of the licensee's administrative, operational, chemistry, and radiation protection procedures associated with radwaste processing and effluent releases. These procedures (approximately 100) were found to be of sufficient scope and detail.

The NRC inspector reviewed several design change request forms involving radwaste systems. All requests reviewed involved items that would not appear to involve an unreviewed safety question.

The NRC inspector also noted that most operational procedures for radwaste activities employed detailed checklists, periodic inprocess quality control reviews, and supervisory reviews of completed activities. All reviews appeared to be completed within a suitable time frame following completion of activities.

No violations or deviations were noted.

5. Training and Qualifications

The NRC inspector reviewed the licensee's training program for radwaste system operators and qualifications of personnel involved in radwaste activities. The licensee's training program for radwaste operators was previously discussed in NRC Inspection Report 50-298/83-19 and addressed NRC concerns and licensee commitments to provide a formal radwaste operator training program by October 1, 1984. The NRC inspector discussed with the licensee the development of the training program (which will include a two-level qualification program: (1) on-the-job training, and (2) periodic requalification), and the qualifications of current radwaste system operators. The licensee had provided, determined by review of training records, current radwaste operators with interim

training on systems operation, wet and solid waste processing, and transportation activities. Therefore, Open Item 298/8319-01 is still considered open pending licensee completion of the radwaste operator qualification/training program. The NRC inspector noted through observations and interviews that current radwaste system operators appear to be knowledgeable in the operation of the radwaste systems.

No violations or deviations were identified.

6. Audits

The NRC inspector determined that the licensee had not completed any audits of radwaste or effluent release activities since NPPD Audit No. 83-08 which was discussed in NRC Inspection Report 50-298/83-19. The licensee stated that an audit of radwaste activities was in progress at the time of this inspection. The licensee also stated that the onsite quality assurance organization will perform periodic surveillances of ongoing radwaste and effluent release activities between formal corporate audits in the future. It was noted that the licensee used auditors with experience in radwaste and effluent release activities in past audits.

No violations or deviations were identified.

7. Radioactive Effluent Releases

a. Liquid

The NRC inspector reviewed the licensee's records of liquid effluent releases to determine compliance with the requirements of 10 CFR Parts 20 and 50 and the Operating License Environmental TS 2.4.1.b.1 through 2.4.1.b.5 and 3.4.1.b.1 through 3.4.1.b.8.

The NRC inspector reviewed selected liquid effluent discharge records for discharges conducted during the period August 1, 1983, through March 31, 1984. All discharge records appeared to be in accordance with the TS and CNS operating procedures and were reviewed for accuracy by the CNS chemist in a timely manner. The licensee's records of liquid discharges indicated that all releases were below the allowed TS release limits. Procedures and records reviewed are essentially the same as discussed previously in NRC Inspection Report 50-298/83-19. The licensee uses a computer summarizing program for liquid discharges for tracking cumulative quantities of radioactivity discharged and evaluating projected quarterly releases which is based on trended data from all current quarterly discharges.

Even though the licensee's liquid effluent releases are considered ALARA, the licensee is planning on bringing on line the augmented liquid radwaste treatment system (concentrator) for use during the October 1984 outage. This installed system has had limited previous

use due to excessive concentrate carryover in the resultant condensate. This system should significantly reduce liquid effluent discharges both during the outage and future operations.

No violations or deviations were identified.

b. Gaseous

The NRC inspector reviewed the licensee's records to determine compliance with the requirements of 10 CFR Parts 20 and 50 and TS 2.4.3.a.1 through 2.4.3.a.9.b and 3.4.3.a.1 through 3.4.3.a.9.

The licensee's gaseous effluent release records and sample analysis records were reviewed and found to be in accordance with the TS and CNS instructions. Gaseous releases were noted to be very low and are considered ALARA. The gaseous effluent release and analysis records have not changed from those previously discussed in NRC Inspection Report 50-298/83-19. The NRC inspector noted that the augmented off gas treatment system had been modified to prevent hydrogen burns within the system.

No violations or deviations were identified.

8. Records and Reports of Radwaste Effluents

The NRC inspector reviewed records and reports required by 10 CFR Part 50.36 and TS 5.4.1.b for July 1 - December 31, 1983.

No violations or deviations were identified.

9. Process and Effluent Control Instrumentation and Calibration

The NRC inspector reviewed the licensee's program for complying with the periodic surveillance, set-point setting, and calibration of gaseous and liquid processes and effluent monitors as required by TS 2.4.1.3.a, 2.4.1.3.b, 3.4.1.b.7, 3.4.1.b.8, 2.4.3.a.5, 2.4.3.a.6.a, 2.4.3.a.6.b, 2.4.3.a.7, 3.4.3.a.8, and 3.4.3.a.9 and the calibration frequencies established in Table 4.2.D of the TS.

Selected records of surveillance tests, daily source checks, calibration procedures, isolation valve tests, and daily operator logs were reviewed. All records indicated compliance with established TS requirements. The NRC inspector did discuss with the licensee the NRC's concerns addressed in NRC Inspection Report 50-298/82-02 concerning full scale calibration of radioactive liquid and gaseous effluent monitors (Open Item 298/8202-04). The licensee stated that they believed that this item was resolved to the NRC's satisfaction during the Radiological Effluent Technical Specification (NUREG-0473) development meetings involving NRC headquarters, regional

staff personnel, and the licensee. The NRC inspector noted that the liquid effluent discharge monitor was calibrated at 3 decade ranges above 10^2 counts per minute (CPM) on a full scale reading of 10^6 CPM which satisfies one of the NRC's concern, but the off-gas radiation monitor is still being calibrated at 2 points below 100 mR/hr on a instrument with a full scale reading of 10^6 mR/hr. The calibration method for the off-gas radiation monitor still does not appear to provide sufficient calibration points to determine instrument response linearity. The NRC inspector noted that the instrument's alarm setpoints were normally set in the range of five to six times higher than the highest calibration point. Open Item 298/8202-04 is still considered open pending licensee action to implement calibration procedures that provide for calibration of effluent monitoring instruments with known radioactive sources that will verify accuracy of the instruments response over a suitable range. A suitable range would include normal operating levels, setpoint levels, and ranges above giving due regard to ALARA considerations.

The setpoint settings on the liquid discharge monitor, elevated release point monitor, and the reactor building vent were observed in the control room displays and found to be in agreement with calibration and surveillance procedure requirements.

No violations or deviations were identified.

10. Procedures For Controlling Effluent Releases

The NRC inspector examined the licensee's procedures for controlling the release of liquid and gaseous effluents.

a. Liquid

Procedures require that Chemistry Form Attachment A to Chemistry Procedure 8.8.11, "Liquid Radioactive Waste Discharge Authorization," be completed prior to each batch release. This form is designed to record such data as:

- o Radiochemistry Analysis Results
- o Maximum Allowable Discharge Flow Rate
- o Operational Check of Liquid Monitor
- o Total Volume Released
- o Total Activity Released
- o Verification of Isolation Valve
- o Review/Authorization

The licensee's records indicated that liquid radwaste releases were made in accordance with applicable procedures, release permits, and TS requirements.

b. Gaseous

The NRC inspector determined the gaseous releases were conducted in accordance with applicable procedures. Gaseous releases were normally processed through the augmented off-gas processing system. The NRC inspector reviewed the licensee's actions in regard to NRC I&E Information Notice 83-52, "Radioactive Waste Gas System Events." The licensee had reviewed the above I&E notice during a Station Operation Review Committee meeting and also assigned it as required review material for control room personnel.

No violations or deviations were identified.

11. Reactor Coolant Quality

The NRC reviewed licensee sampling and analysis results to determine compliance with TS 3.6.B and 4.6.B. Records indicated that appropriate gamma isotopic, alpha and iodine analysis, and other non-radiochemistry analysis; e.g., pH, boron, conductivity were conducted as required.

No violations or deviations were identified.

12. Air Cleaning Systems

a. Technical Specification Items

(1) Standby Gas Treatment System (SBGT)

TS 3.7.B and 4.7.B contain test requirements for the SBGT. The licensee's records indicated that leakage and efficiency tests were performed during the first quarter of 1984. All operability and filter/adsorber media tests were performed as required by procedures and in accordance with industry standards. The licensee had replaced the charcoal adsorber beds in both trains of the SBGT due to their failure to pass iodine removal efficiency tests.

(2) Control Room

TS 3.12.A and 4.12.A contain test requirements for the control room. The licensee's records indicated that leak and efficiency tests were performed during the first quarter of 1984. All operability and capacity tests were performed as required.

No violations or deviations were identified.

b. Nontechnical Specification Air Cleaning Systems

The NRC inspector noted that a testing program had been established for nontechnical specifications HEPA filters and charcoal adsorbers that satisfied the recommendations of NRC Regulatory Guide 1.140.

These air cleaning systems included the technical support center, emergency operations facility, radwaste building, reactor building, and augmented radwaste building. The establishment of this testing program resolves the concerns identified in Open Item 298/8203-03.

No violations or deviations were identified.

13. Plant Tour

The NRC inspector made a tour on April 4, 1984, of CNS radwaste processing areas. During this tour, radioactive wet waste (resins, sludges, etc.) processing (solidification by mixing with cement) activities within the radwaste building were reviewed. During this review, within the wet waste processing operator/control panel room, an AO was observed climbing a ladder and entering a posted, but not barricaded, high radiation area (drum capping station of wet waste processing conveyer system) to obtain preliminary gamma dose rate measurements from drums of mixed wet waste. The AO was wearing appropriate dosimetry. The AO's log indicated that readings (seven readings) taken on April 4, 1984, showed general area dose rates (approximately 3 feet distance from drums) averaged 400 to 450 mR/hr, and contact dose rates of 2 to 3 R/hr. The instrument used by the AO to obtain the readings was verified to be in good operating order and current calibration by the NRC inspector. The NRC inspector determined that CNS Health Physics Procedure 9.1.2.2 requires that all entries into high radiation area be controlled by issuance of a special work permit (SWP). The only currently issued SWP for wet waste processing activities (SWP 8-3-20) was located in an adjacent separate area of the facility and the AO was not signed in on the SWP for April 4, 1984. The licensee indicated that SWP 8-3-20 was not written for the activities (dose rate measurements) being performed by the AO. The NRC inspector noted also that another AO/radwaste operator was also entering a posted high radiation area at the empty drum loading station (activities are covered by SWP 8-3-20). Further investigation by the NRC inspector revealed that neither of the AOs had requested and received permission/authorization of the shift supervisor to enter the respective high radiation areas on April 4, 1984, and the fact that the high radiation area access at the drum capping station was not barricaded constitutes a violation of TS 6.3.4A (298/8406-01). Also, the conducting of work inside of a high radiation area without the issuance of a SWP authorizing the work is a violation of CNS Health Physics Procedures 9.1.2.2 and 9.1.1.4 which require the issuance of an SWP for entrance and work within a high radiation area (298/8406-02).

The NRC inspector noted on April 6, 1984, that a comprehensive SWP had been posted for the drum dose rate measurement activities at the drum capping station.

14. Solid Radwaste

The NRC inspector reviewed the licensee's records of solid radwaste shipped off site since 1979.

<u>Year</u>	<u>Volume (cubic meters)</u>
1979	565.3
1980	435.0
1981	498.9
1982	444.7
1983	503.0

The licensee's solid radwaste processing and shipping program appears to satisfy the requirements of 10 CFR Parts 20.311, 61.55, and 61.56.

No violations or deviations were identified.

15. Exit Interview

At the conclusion of the inspection, on April 6, 1984, the NRC inspector met with those persons identified in paragraph 1 and reviewed the scope of the inspection along with the inspection findings. The licensee acknowledged the NRC inspector's concerns regarding the apparent violations noted in paragraph 9. The licensee was noted to have implemented an SWP for the operations of concern.

INSPECTOR'S REPORT
Office of Inspection and Enforcement

REVIEWER
H Chaney
B Murray

INSPECTORS
H Chaney

LICENSEE/VENDOR	TRANSACTION TYPE	DOCKET NO. (8 digits) OR LICENSE NO. (BY PRODUCT) (13 digits)	REPORT		NEXT INSP. DATE	
			NO	SEQ	MO	YR
Nebraska Public Power Dist.	<input checked="" type="checkbox"/> I - INSERT <input type="checkbox"/> M - MODIFY <input type="checkbox"/> D - DELETE <input type="checkbox"/> R - REPLACE	05000298	8906	A		

PERIOD OF INVESTIGATION/INSPECTION						INSPECTION PERFORMED BY						ORGANIZATION CODE OF REGION/HQ CONDUCTING ACTIVITY (See IEMC 0530 Manpower Reporting - Weekly Manpower Reporting for code)		
FROM			TO			1 - REGIONAL OFFICE STAFF			OTHER			REGION	DIVISION	BRANCH
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REGIONAL ACTION (Check one box only)	TYPE OF ACTIVITY CONDUCTED (Check one box only)													
<input checked="" type="checkbox"/> 1 - NRC FORM 591 <input checked="" type="checkbox"/> 2 - REGIONAL OFFICE LETTER	<input checked="" type="checkbox"/> 02 - SAFETY	<input type="checkbox"/> 06 - MGMT. VISIT	<input type="checkbox"/> 10 - PLANT SEC.	<input type="checkbox"/> 14 - INQUIRY	<input type="checkbox"/> 03 - INCIDENT	<input type="checkbox"/> 07 - SPECIAL	<input type="checkbox"/> 11 - INVENT. VER.	<input type="checkbox"/> 15 - INVESTIGATION	<input type="checkbox"/> 04 - ENFORCEMENT	<input type="checkbox"/> 08 - VENDOR	<input type="checkbox"/> 12 - SHIPMENT/EXPORT	<input type="checkbox"/> 05 - MGMT. AUDIT	<input type="checkbox"/> 09 - MAT. ACCT.	<input type="checkbox"/> 13 - IMPORT

INSPECTION/INVESTIGATION FINDINGS (Check one box only)				TOTAL NUMBER OF VIOLATIONS AND DEVIATIONS				ENFORCEMENT CONFERENCE HELD				REPORT CONTAIN 2 790 INFORMATION				LETTER OR REPORT TRANSMITTAL DATE									
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MODULE INFORMATION												MODULE INFORMATION															
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TYPE	NUMBER	PHASE	MANUAL CHAPTER	PROCEDURE NUMBER					LEVEL	SEC	PHASE	MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL	TYPE	NUMBER	PHASE					MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL	SEC	PHASE	MANUAL CHAPTER
B	01	5	3	07	03	A	2					B	05	5	2	1	7	2	2	A	2	1	10				
B	07	5	8	3	7	2	2	A	4	1	0	B	06	5	8	4	7	2	3	A	1	5	8				
B	03	5	8	3	7	2	3	A	3	2	0	B	07	5	8	4	7	2	4	A	1	1	5				
B	07	5	9	2	7	0	2	A	3			B	07	5	9	2	7	0	6	A	2						

* CIRCLE SEQUENCE IF VIOLATION OR DEVIATION

INSPECTOR'S REPORT
(Continuation)
Office of Inspection and Enforcement

DOCKET NO. (8 digits) OR LICENSE
NO. (BY PRODUCT) (13 digits)

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REPORT

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IV

VIOLATION, SEVERITY OR DEVIATION

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SITE RELATED

X	A	C
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VIOLATION OR DEVIATION (Enter up to 2400 characters for each item. If the text exceeds this number, it will be necessary to paraphrase. Limit lines to 50 characters each.)

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B. Radiation Protection Procedure Compliance

Technical Specification 6.3.4 requires that radiation control procedures to be maintained consistent with the requirements of 10 CFR Part 20. Station Health Physics, Procedure 9.1.2.2, requires that personnel entrance into a high radiation area shall require a special work permit. Also, Health Physics Procedure 9.1.1.4 requires the issuance of a special work permit for control of access and work in a high radiation area.

Contrary to the above, routine work operations were conducted on April 4, 1984, in a high radiation area in the radioactive waste solidification processing area, by station personnel without issuance of a special work permit.

This is a Severity Level IV Violation. (Supplement IV) (298/8406-02)

INSPECTOR'S REPORT
(Continuation)
Office of Inspection and Enforcement

DOCKET NO. (8 digits) OR LICENSE
NO. (BY PRODUCT) (13 digits)

REPORT

MODULE NUMBER

NO.	SEQ.
	A
	B
	C
	D

VIOLATION SEVERITY OR DEVIATION					
1	2	3	4	5	6

SITE RELATED	
A	B

VIOLATION OR DEVIATION (Enter up to 2400 characters for each item. If the text exceeds this number, it will be necessary to paraphrase. Limit lines to 50 characters each.)

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