

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
REGION IV

Report No. 50-298/80-01

Docket No. 50-298

License No. DPR-46

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

Facility Name: Cooper Nuclear Station

Inspection At: Cooper Nuclear Station, Nemaha County, Nebraska

Inspection Conducted: January 29-February 1, February 5-7 and February 13-14,
1980

Principal Inspector:

Robert G. Spangler for 2/6/80
G. L. Constable, Reactor Inspector Date

Robert G. Spangler 2/6/80
R. G. Spangler, Reactor Inspector Date

Robert G. Spangler for 2/6/80
E. A. Yandell, Reactor Inspector Date

Accompanying
Personnel:
(2/5-8/80)

S. D. Roessler, IE:HQ

Approved by:

T. F. Westerman 2/7/80
T. F. Westerman, Chief, Reactor Projects Date
Section

8004210219

Inspection Summary

Inspection conducted January 29 - February 1, February 5-7, and February 13-14, 1980 (Report No. 50-298/80-01)

Areas Inspected: Routine, unannounced inspection of (1) Plant Operations; (2) Review of NUREG-0578 implementation; (3) Containment Vent and Purge; (4) Preparations for Refueling; (5) Neutron Monitoring and Thermal Limits; (6) Spent Fuel Storage Racks; (7) Small Break LOCA Procedures; (8) Follow-up on LER's, (9) IE Bulletins, Circulars; and (10) Previously identified Unresolved Items. The inspection involved 138 inspection-hours on-site by four (4) NRC inspectors.

Results: No items of noncompliance or deviations were noted in 8 of the 10 areas inspected. Two items of noncompliance (Infraction - failure to adhere to a surveillance procedure - paragraph 9; Deficiency - failure to wear required protective clothing - paragraph 2) were noted.

DETAILSPersons Contacted

- *L. C. Lessor, Station Superintendent
- M. G. Williams, Operations Supervisor
- J. L. Peaslee, Shift Supervisor
- G. K. Adkins, Shift Supervisor
- M. F. Edgerton, Shift Supervisor
- R. A. Parmelee, Unit Operator
- M. C. Comstock, Station Operator
- J. W. Collins, Station Operator
- M. W. Sandau, Station Operator
- R. W. Werman, Unit Operator
- R. A. Jansky, Shift Supervisor
- R. D. Black, Shift Supervisor
- *P. J. Borer, Operations Supervisor
- *R. O. Peterson, Engineering Supervisor
- R. D. Flannigan, Nuclear Engineer
- J. V. Sayer, Chemistry and HP Supervisor

*Present at exit interviews.

In addition to the above technical and supervisory personnel, the inspector held discussions with various maintenance, operations, technical support and administrative members of the licensee's staff.

1. Plant Status

Near full power operations, end of cycle coastdown.

2. Review of Plant Operations

The purpose of this inspection effort was to verify that routine facility operations were being conducted in accordance with license conditions and procedural requirements.

The inspectors reviewed logs, records and reports as listed below, discussed plant operations with management and shift personnel, and made tours of the accessible areas of the plant.

Night Order Book, Shift Supervisor's Log	November 7, 1979 - January 30, 1980 November 15-22, 1979 January 3-11, 1980
Control Room Log	November 15-22, 1979 January 3-11, 1980
Special Orders Log	All outstanding entries
Jumper Log	All outstanding entries
Special Work Permit Log	All outstanding entries
Clearance Order Book	All outstanding entries
Scram Reports	November 7, 1979 - January 30, 1980
Radwaste Log	December 10-21, 1979 January 21-28, 1980
Valve Seals Log	Selected SW & HPCI Entries
Red Arrow Log	November 7, 1979 - January 15, 1980
Nonconformance Reports	November 15, 1979 - January 15, 1980
Daily Log Sheets	January 3-7, 1980 January 15-21, 1980 January 23-24, 1980

The inspector reviewed the implementation of the Shift Turnover Log which was started December 28, 1979 in accordance with a Night Order Book entry and formalized in revised Administrative Procedure 1.4 (Section 1.4.4.1.2) dated January 17, 1980. The entries for January 3-10, 1980 were reviewed.

The inspector reviewed the red arrow marker system implemented by the licensee in revised Administrative Procedure 1.4 (Section 1.4.11.6) and discussed the system with shift personnel.

No items of noncompliance or deviation were noted in the above areas.

The inspectors witnessed the startup of the High Pressure Coolant Injection (HPCI) pump from the HPCI room. On entering the room to observe the test the inspector observed that contrary to radiation control information posted on the HPCI room door, the station operator involved with preparation for the test was not wearing protective shoe covers and gloves. The station operator was informed that he was in apparent noncompliance with station procedures. The inspectors discussed the incident with the Health Physics office and appropriate corrective action was taken. The failure to follow Cooper Nuclear Health Physics procedures is an item of noncompliance.

3. Review of NUREG-0578 Implementation

The inspector reviewed the implementation of NUREG-0578 requirements in accordance with NPPD's enclosure to a January 11, 1980 letter

from J. M. Pilant (NPPD) to H. R. Denton (NRC) which summarizes NPPD's actions in response to the Show Cause Order issued by NRC, dated January 2, 1980.

Those items requiring action by January 31, 1980 were inspected and appear to have been implemented in an acceptable manner. Items that are awaiting implementation pending parts arrival on site (direct indication of relief valve position and diverse containment isolation) and items with a January 1981 implementation date will be reviewed during future inspections.

4. Containment Vent and Purge

On September 12, 1979, Cooper Nuclear Station experienced a failure of both seals on "B" Reactor Recirculation pump. The first seal had failed earlier in the day and failure of the second seal had been anticipated. Shortly after the second seal failed the reactor operators started standby gas treatment (SBGT) and vented primary containment. After the event the inspector discussed this with the shift supervisor and other members of the plant staff. The stated purpose of venting the containment was to avoid containment isolation and a subsequent scram to allow for an orderly shutdown and to avoid unnecessary challenges to the safety systems. It was pointed out that the operators had positive indication of the source of the leak and they knew that radioactivity in the containment was minimal. The inspector accepted this explanation. Since that time NRC has taken action to limit all purging and venting times to as low as achievable and to emphasize operating the containment in a passive mode. In a December 18, 1979 letter to NRC, NPPD outlined their commitments which appear to exclude venting containment to avoid an isolation. The inspector discussed this with members of the plant staff and learned that the licensee does not feel that the commitments in the December 18 letter prevent them from venting containment under the circumstances described above. After discussions with NRC Headquarters staff the inspector informed the station superintendent that the present criteria does not allow venting of containment in order to avoid an isolation. A commitment was made by the licensee to take the isolation if a Reactor Recirculation pump seal fail in the future. If, in the licensee's view, this causes unnecessary challenges to the safety system or because of special circumstances at Cooper Nuclear Station this action would create a less safe condition, then the licensee should pursue an agreement on more acceptable criteria. Our present philosophy is that an operator should not make a hasty, nonsafety related, decision to override

a safety system during an event. This arises out of a concern that the actual event may be different than that initially perceived by the operator.

This matter will be reviewed during a subsequent inspection.

5. Preparation for Refueling

The inspectors reviewed the licensee's activities in preparation for refueling including overall outage plans. The inspectors observed portions of the inspection of new fuel to verify that the inspection and fuel handling was conducted in accordance with approved procedures.

No items of noncompliance or deviations were identified in this area.

6. Neutron Monitoring and Thermal Limits

The purpose of this inspection effort was to review the licensee's overall neutron monitoring system and core thermal performance. The inspectors reviewed the following surveillance procedures, data sheets, and process computer printouts. In addition, the inspectors held discussions with licensed operators and other members of the licensee's staff on how the data is used.

<u>Procedure</u>	<u>Title</u>	<u>Dates Reviewed</u>
6.1.3	APRM Functional	1/5-2/2/80
7.5.2.3	LPRM Calibration	two most recent
10.1	APRM Calibration	1/1-2/6/80
10.8	Reactivity Anomaly	6/4/79-1/8/80

Process Computer Printouts

P1	for CMWT, MCPR, MAPLHGR	1/1/80-2/6/80
OD-3		1/1/80-2/6/80
OD-6	Option 3, 4	1/1/80-2/6/80

While reviewing procedure 10.8, Reactivity Anomaly, the inspector observed a requirement that there be no significant indication of reactivity change for 8 hours prior to the test. Reviewing the data sheets for this test, the inspector noted that during the 8 hours

preceding several tests that reactor power had been changed as much as 18%. The inspector pointed out that such a power level change might be considered significant and that it was not clear whether these power level changes would affect these tests or not. Further review indicated that since the power level changes were accomplished by recirculation flow rather than control rod movements that these changes had little effect. The inspectors recommended that the licensee consider whether this procedure should be clarified on this point.

During the review of procedure 6.1.3, APRM Functional, the inspector noted that if the APRM Trip Set Point exceeded 118% while the Gain Adjustment Factor was 1.02 that the APRM would trip at a setting higher than the allowed 120%. In addition the inspector noted that on several recent occasions the APRM Trip Setting was found to be at 118.5%. Further review by the licensee indicated that at least on one occasion on APRM would have tripped at approximately 120.5% reactor power. This matter is under review and is considered an unresolved item (8001-1).

No items of noncompliance or deviations were identified.

7. Spent Fuel Racks

The purpose of this inspection effort was to observe a portion of the test for detecting the presence of boron in the poison plates contained in the high density spent fuel storage racks. The inspector reviewed the procedure supplied by Nuclear Energy Services, inspected the equipment set-up and witnessed the tests on the first row of fuel rack number one. The test appears to adequately detect the presence of boron; however, the test apparatus could not fit in all of the test locations. The results of this testing will be reviewed during a future inspection.

8. Review of Licensee Small Break Loss of Coolant Accident Procedures

The inspector reviewed the licensee's small break loss of coolant accident (SBLOCA) procedures, 5.3.2 - Pipe Break Inside Containment, revision 4, and 5.3.3 - Pipe Break Inside the Reactor Building, revision 4, in accordance with Temporary Instruction (TI) 2515/32. A summary of the findings are noted in the following sections.

a. Procedure Implementation

The licensee's procedures generally contained the symptoms, immediate actions, subsequent actions and precautions identified in the GE owners group SBLOCA guidelines. However, the inspector

noted that the licensee has chosen to redesignate a guideline immediate action (SBA-2, step 3.4) to a subsequent action within procedure 5.3.2. This step directs the operator to take manual control of all high pressure Reactor Vessel (RV) feed systems if RV level approaches the high level trip set point of +58.5 inches.

b. Training Requirements

The licensee had documented each operator's review of the currently approved emergency procedures 5.3.1 and 5.3.2 and that each shift had walked through procedure 5.3.2 on January 24, 1980. No formal classroom lectures on the GE NEDO-24708 analyses or SBLOCA procedures has been given. The station manager indicates that this type of classroom training will be added to the current requalification program.

c. Operator Interview

From discussions and interviews with various reactor operators (SRO's and RO's), the inspector determined that the basic concept of maintaining RV water level by either high pressure feed systems if available or depressurization and low pressure feed systems is well understood. However, it is not the licensee's policy to have the operators memorize verbatim the 3 pages of immediate actions delineated in procedure 5.3.2. They are required to know the six major headings A through F of this procedure. The operators interviewed were able to identify these six requirements and explain any actions required to implement them.

d. System Considerations

The only significant concern found by the inspector in this area related to the automatic switchover of the HPCI and RCIC suction from the Condensate Storage Tank (CST) to the torus. This action, depending on the SBLOCA break size, will occur at some time interval after the initiating event and by procedure the operator is required to verify this switchover. Control room indications related to this switchover consist of panel alarms for low CST level and low suction pressure to the HPCI and RCIC pumps, and valve position indications. The inspector expressed the concern that considering the large number of panel alarms "in" following an event it might be difficult for an operator to immediately recognize that the alarms noted above had occurred thus delaying switchover verification or manual action if necessary. The station manager agreed to this and further agreed that the concern may be generic. The licensee is investigating solutions to this problems.

9. Follow-up on Licensee Event Reports (LER)

The inspector reviewed the following licensee event reports to verify that reporting requirements were met and to assess whether further NRC action is appropriate. An (*) indicates that onsite follow-up verified that appropriate corrective action was being taken by the licensee.

<u>LER</u>	<u>Title</u>	<u>Status</u>
78-22*	MSIV Limit Switches set nonconservative	Closed
78-40	PC 246 AV Seat Leakage	Closed
79-01*	Failed D/W Monitor	Closed
79-02*	SBGT Discharge Line Plugged	Closed
79-03*	Degraded Fire Barrier	Closed
79-04*	SBGT Cross Tie Valve Left open	Closed
79-05*	RRMG Set Trip	Closed
79-08*	Breaker failed to open	Closed
79-21*	SBGT-B Deluge	Closed
79-22*	SBGT-A Deluge System Leak	Closed
79-29*	RECS Leak	Closed
79-35*	CS-MO-12A Failed to Open	Closed
79-36*	DG2 Failure/Cylinder Wear	Closed
79-38	Suppression Chamber Level Indicator Failed	Closed
79-39	Suppression Chamber Vent Valve Inoperable	Closed

79-40	Service Water Backwash Line Thinness	Closed
79-42*	RHR Pump BKR not Charged	Closed
79-43*	RFC Pin Hole Leak on Weld	Closed
80-02*	HPCI Stop Valve-Broken Stem	Closed
80-04	RHR MO-18 Inoperable	Closed

Certain of the issues included in the above LER's are still under review in conjunction with other LER's, Bulletins, Circulars, etc. and are closed out here for administrative purposes only.

No items of noncompliance or deviations were noted in the above areas.

The licensee reported in LER 80-01 procedural and personnel errors related to the HPCI system being inoperable for approximately 34 hours. This event represents a serious breakdown of the licensee's administrative controls of surveillance activities and as a result has been identified as an item of noncompliance. The inspectors reviewed the licensee's initial corrective action, including the new system for indicating when a control is out of its normal position. The inspector expressed concern that the corrective action appeared to be aimed primarily at licensed operators and does not appear to substantially improve the situation with regard to nonlicensed technicians who initiated this and other similar events outlined in LER's 78-14 and 79-41.

10. Review of IE Bulletins and Circulars

The purpose of this inspection effort was to review the licensee activities with regard to issues raised in IE Bulletins and Circulars. The following Bulletins and Circulars were reviewed during this inspection.

Bulletins

<u>Number</u>	<u>Title</u>	<u>Status</u>
79-02	Concrete Anchor Bolts	Open
79-12	Sort Period Scrams	Open
79-14	Seismic Analysis	Open
79-25	Failure of BFD Relays	Closed
79-26	Boron Loss from Control Blades	Open
79-28	NAMCO EA 180 Switches	Closed
80-01	Operability of ADS Pneumatic Supply	Open

Circulars

<u>Number</u>	<u>Title</u>	<u>Status</u>
79-07	RRMG Over Speed	Open
79-19	Loose Locking Devices on Pumps	Closed
79-22	Stroke Times for Relief Valves	Closed
79-23	Failure to Start-Motor Starters/Contactors	Closed
79-24	CS Pipe Break Detection	Open

Review of Circular 79-24 activities indicate that the licensee chose not to reset the core spray pipe break detection alarm to the 0.5 lb. D/P setting recommended by GE. The licensee's set point is 2 lb. D/P. Some concern was expressed by the licensee that the lower setting, while making the system more sensitive to leaks, may result in an alarm condition under cold startup conditions. This item will be reviewed during the Spring 1980 refueling outage.

No items of noncompliance or deviations were noted in this area.

11. Unresolved Items

Unresolved items are those issues that require additional information in order to determine if the item is acceptable, an item of noncompliance or deviation.

The following unresolved item is identified in this report:

8001-1 APRM Setting/GAF Paragraph 6

The following unresolved items are closed as a result of NRC review and action taken by the licensee.

<u>Number</u>	<u>Description</u>	<u>Report</u>	<u>Reference</u>
7703-2	Operability of Equipment	77-04	P.6
7706-2	Conformance to App. J	77-06	P.9
7802-1	CRD S/N 5281	7802	P.4
7807-1	System Lineup for Startup Training		
7815-2	CRD S/N 1620	78-15	P.3
7820-1	SORC Approval of MDG	78-20	P.3
7903-1	Fire Protection Indoctrination	79-03	P.5
7903-2	Fire Hazard Inspection	79-03	P.5
7916-1	One-of-a-Kind Records	79-16	P.4
7916-2	Records Storage - Roof Drain	79-16	P.4
7916-3	Records Storage - Fire Protection	79-16	P.4

12. Exit Interview

The inspector met with the station superintendent on February 1, 7 and 14, 1980. The scope of the findings were discussed.