



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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May 24, 2000

S. K. Gambhir, Division Manager
Nuclear Operations
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 399
Hwy. 75 - North of Fort Calhoun
Fort Calhoun, Nebraska 68023-0399

SUBJECT: NRC INSPECTION REPORT NO. 50-285/00-03

Dear Mr. Gambhir:

This refers to the inspection conducted on April 2 through May 20 at the Fort Calhoun Station facility. The results were discussed with Mr. Clemens and other members of your staff. The enclosed report presents the results of this inspection. The inspection included an access authorization inspection conducted from April 2-7. The results of that inspection were presented to Mr. Gambhir and other members of your staff on April 7. Additional information about one inspection finding was presented by telephone to Mr. Cavanaugh and Mr. Dryden of your staff on April 12.

The inspection was an examination of activities conducted under your license as they relate to safety and to compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with personnel.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room (PDR).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

Charles S. Marschall
Project Branch C
Division of Reactor Projects

Docket No.: 50-285
License No.: DPR-40

Enclosure:
NRC Inspection Report No.
50-285/00-03

cc w/enclosure:
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Only inspection reports to the following:

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 FCS Site Secretary (**NJC**)
 Wayne Scott (**WES**)

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 50-285
License No.: DPR-40
Report No.: 50-285/00-03
Licensee: Omaha Public Power District
Facility: Fort Calhoun Station
Location: Fort Calhoun Station FC-2-4 Adm.
P.O. Box 399, Hwy. 75 - North of Fort Calhoun
Fort Calhoun, Nebraska
Dates: April 2 through May 20, 2000
Inspectors: W. Walker, Senior Resident Inspector
D. Schaefer, Senior Physical Security Inspector
C. Osterholtz, Resident Inspector
W. Sifre, Project Engineer
Approved By: Charles S. Marschall, Chief, Project Branch C

ATTACHMENTS:

Attachment 1: Supplemental Information
Attachment 2: NRC's Revised Reactor Oversight Process

Report Details

Summary of Plant Status:

The Fort Calhoun Station was restarted on April 2, 2000, following a 2-day outage to repair a control rod drive motor. On April 7, 2000, the plant was at 100 percent power and remained there throughout the inspection period.

1. REACTOR SAFETY **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity**

1R01 Adverse Weather

a. Inspection Scope

The inspectors conducted an inspection of the protected area with an equipment operator. Areas where materials were not properly stored were noted and Condition Report 200000946 was initiated. The inspectors reviewed Operating Instruction OI-EW-1, "Extreme Weather," Revision 5, and Updated Safety Analysis Report (USAR), Section 5.8.2.2, "Tornado Generated Missiles," prior to performing the inspection.

b. Issues and Findings

The inspectors did not identify any significant findings.

1R04 Equipment Alignments

.1 Train B of Safeguards Equipment

a. Inspection Scope

The inspectors performed a partial inspection of Train B of the safeguards equipment while scheduled testing was being performed on Train A of the safeguards equipment. Operating Instruction OI-ES-1, "Engineered Safeguards Controls," was used to verify correct lineups for Train B of the safeguards equipment.

b. Issues and Findings

The inspectors did not identify any significant findings.

.2 Emergency Diesel Generator Verification

a. Inspection Scope

The inspectors performed a partial inspection of Emergency Diesel Generator 1 while scheduled on-line maintenance was being performed on Emergency Diesel Generator 2. Plant procedures and drawings were used to verify correct system lineups for Emergency Diesel Generator 1.

b. Issues and Findings

The inspectors did not identify any significant findings.

1R05 Fire Protection

Fire Brigade Drills

a. Inspection Scope

The inspectors observed training and performance of two fire drills by fire brigade members, in the turbine building and the intake structure.

b. Issues and Findings

The inspectors did not identify any significant findings.

1R06 Flood Protection

a. Inspection Scope

The inspectors conducted a tour of the auxiliary building and intake structure. The inspectors reviewed the internal flooding analysis design calculations performed to demonstrate that the safety-related equipment in the auxiliary building and intake structure was not vulnerable to internal flooding and also reviewed the design basis for the plant site to verify the auxiliary building and intake structure were not vulnerable to external flooding events.

The following documents and calculations were used as criteria for the inspection:

- PRA Summary Notebook Table 7.1.3: "Summary of Dominant Internal Flooding Scenarios."
- USAR Section 2.7, "Hydrology," and Section 9.8, "Raw Water System."
- Engineering Analysis EA-FC-90-084, Revision 0, "Raw Water Pump Room Internal Flooding."

b. Issues and Findings

The inspectors did not identify any significant findings.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors verified proper implementation of the maintenance rule for the electrical distribution system and the turbine-driven auxiliary feedwater pump (FW-10). Cause

determinations were reviewed for the two systems to ensure maintenance preventable conditions were properly dispositioned.

b. Issues and Findings

The inspectors did not identify any significant findings.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

.1 Replacement of Raw Water Pump Impeller

a. Inspection Scope

The inspectors reviewed the work order and observed portions of the replacement of Raw Water Pump Impeller AC-10D. The inspectors assessed the licensee's work prioritization and risk determination associated with this activity to verify that the licensee appropriately considered risk.

b. Issues and Findings

The inspectors did not identify any significant findings.

.2 Frequency Oscillations on Inverter D

- a. The inspectors reviewed the work order and observed troubleshooting related to the frequency oscillations that were observed on Inverter D. The inverter was oscillating at 60 hertz + or - .2 hertz. This frequency oscillation was within the design basis for the inverter but outside the normal deviation for frequency.

The inspectors assessed troubleshooting of the inverter, work planning, and risk management.

b. Issues and Findings

The inspectors did not identify any significant findings.

.3 Control Element Assembly 25 Repair

a. Inspection Scope

The inspectors reviewed work activities to repair Control Element Assembly 25 after it failed to insert following a surveillance test. The activities included performing a controlled shutdown to allow the repair.

b. Issues and Findings

The inspectors did not identify any significant findings.

.4 Emergency Diesel Generator Governor Repair

a. Inspection Scope

The inspectors reviewed the work activities associated with the repair of the governor for the emergency diesel generator after it did not function properly following postmaintenance testing.

b. Issues and Findings

The inspectors did not identify any significant findings.

1R15 Operability Evaluations

.1 (OPEN) Unresolved Item 50/285/0003-01: Turbine-driven Auxiliary Feedwater Pump FW-10 Operability.

During the performance of Turbine-driven Auxiliary Feedwater Pump FW-10 quarterly Surveillance Test SE-ST-AFW-3006, technicians noted performance problems. They observed that Pump FW-10 discharge pressures and flows oscillated and that pump speed oscillated between 6600 and 7100 rpm. They suspended the test and generated Work Order 57786 to perform troubleshooting.

During troubleshooting, technicians discovered Derivative Relay YC-1039-1 set at 0.75 instead of 0.15 as required by Calibration Procedure IC-CP-01-1039. They checked the derivative relay and differential pressure controller and found them free of debris. The technicians set the derivative relay back to 0.15, completed the surveillance test satisfactorily, and declared FW-10 operable.

The licensee noted that, when technicians last performed the calibration procedure during the refueling outage, they had independently verified the derivative setpoint at 0.15. The licensee could not immediately identify when or why the derivative relay setpoint had changed. The licensee generated Condition Report 200000870 and initiated a root cause analysis to attempt to determine how the setpoint changed. The licensee concluded that it was reasonable that the setpoint change had rendered FW-10 inoperable for a period of greater than 24 hours and therefore was reportable per 10 CFR 50.73. The licensee also initiated an operability assessment to determine more specifically how the setpoint change affected FW-10 operability. Pending completion of the root cause analysis and operability determination, this item will remain open.

.2 Safety Injection Pump Room Temperature Limits

a. Inspection Scope

The inspectors reviewed the following operability evaluation for technical adequacy and impact on continued plant operation.

- Operability determination for Safety Injection Pump Room Heating Ventilation and Air Conditioning (CR 19901103)

b. Issues and Findings

The inspectors did not identify any significant findings.

1R19 Postmaintenance Testing

a. Inspection Scope

The inspectors observed or evaluated the following postmaintenance tests to determine whether the test adequately confirmed equipment operability.

- Work Order 17802 for Diesel Generator 2, 12-year overhaul maintenance;
- Engineering Change Notice 99006 for disassembly and replacement of a pump impeller on Raw Water Pump AC-10D; and
- Work Order 14948 for replacement of Raw Water Strainer AC-12A.

b. Issues and Findings

The inspectors did not identify any significant findings.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed all or part of the following surveillance activities to confirm that the licensee effectively controlled risk impact:

- Surveillance Test Procedure OP-PM-AFW-0004, "Third Auxiliary Feedwater Pump Operability Verification," Revision 20,
- Surveillance Test Procedure SE-ST-AFW-3006, "Auxiliary Feedwater Pump FW-10, Steam Isolation Valve, and Check Valve Tests," Revision 26,
- Surveillance Test Procedure OP-ST-CCW-3002, "AC-3A: Component Cooling Water Pump Inservice Test," Revision 13, and
- Surveillance Test Procedure EM-ST-EE-0009, "Monthly Surveillance Test For Station Battery Chargers," Revision 16.

b. Issues and Findings

The licensee discovered an operability concern with FW-10. See Section 1R15 for details.

The inspectors did not identify any significant findings with the other surveillances.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors performed a programmatic review of the temporary modification program and performed a detailed review of two temporary modifications installed for use of welding receptacles for electric power and one installed to permit repair of the Blair water main into the plant.

b. Issues and Findings

The inspectors did not identify any significant findings.

3. SAFEGUARDS
Cornerstone: Physical Protection

3PP1 Access Authorization (IP 71130.01)

a. Inspection Scope

The inspector completed the following inspection elements:

- Reviewed licensee event reports and safeguards event logs to identify problems in the access authorization program.
- Reviewed procedures, audits, and self-assessments of the following programs/areas: behavior observation, access authorization, and fitness-for-duty and supervisor, escort, and requalification training.
- Interviewed six supervisors/managers and five individuals who had escorted visitors into the protected and/or vital areas to determine their knowledge and understanding of their responsibilities in the behavior observation program.

b. Issues and Findings

There were no significant findings identified during this inspection.

3PP2 Access Control (IP 71130.02)

a. Inspection Scope

The inspector completed the following inspection elements:

- Reviewed licensee event reports and safeguards event logs to identify problems with access control equipment.

- Reviewed procedures and audits for testing and maintenance of access control equipment and for granting and revoking unescorted access to protected and vital areas.
- Interviewed security personnel concerning the proper operation of the explosive and metal detectors, X-ray devices, and key card readers.
- Observed licensee testing of access control equipment and the ability of security personnel to control personnel, packages, and vehicles entering the protected area.
- Reviewed procedures to verify that a program was in place for controlling and accounting for hard keys to vital areas.
- Reviewed the licensee's process for granting access to vital equipment and vital areas to authorized personnel having an identified need for that access.

b. Issues and Findings

There were no significant findings identified during this inspection.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (IP 71151)

a. Inspection Scope

The inspector completed the following inspection elements:

- Reviewed the licensee's program for collection and submittal of performance indicator data. Specifically, a random sampling of security event logs, maintenance logs, and corrective action reports were reviewed for the following program areas:
 - (1) Fitness-for-duty/personnel reliability program performance,
 - (2) Personnel screening program performance, and
 - (3) Protected area security equipment performance index.
- Reviewed the licensee's security tracking, trending, and analysis of perimeter security equipment problems.

b. Observation and Findings

There were no significant findings identified during this inspection.

40A4 Other

The following LER was determined to be of minor significance and is closed:

LER 285/98-012-01: Hydrogen Generation Design Basis

40A5 Exit Meeting Summary

- .1 The inspector presented the inspection results documented in Sections 3PP1, 3PP2, and 40A1 of this report to Mr. S. Gambhir and other members of licensee management at an exit meeting on April 7, 2000. The licensee acknowledged the inspector's findings. On April 12, 2000, the inspector telephonically notified Messrs. G. Cavanaugh, Supervisor, Station Licensing, and D. Dryden, Licensing, of the recharacterization of one inspection issue. No proprietary information was identified.
- .2 On May 19, 2000, the inspectors presented the inspection results in a meeting with Mr. Clemens and other members of your staff. The licensee acknowledged the findings as presented. The licensee did not consider any material examined during the inspection proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Chase, Division Manager, Nuclear Assessment
R. Clemens, Plant Manager
M. Frans, Manager, Nuclear Licensing
S. Gambhir, Division Manager, Nuclear Operations
W. Gates, Vice President
R. Phelps, Division Manager, Nuclear Engineering
R. Short, Assistant Plant Manager
J. Spilker, Manager, Corrective Action Group

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

285/0003-01	URI	Turbine-driven Auxiliary Feedwater Pump FW-10 Operability (Section 1R15)
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Closed

285/98-012-01	LER	Hydrogen Generation Design Basis (Section 4OA4)
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NRC'S REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
<ul style="list-style-type: none">•Initiating Events•Mitigating Systems•Barrier Integrity•Emergency Preparedness	<ul style="list-style-type: none">•Occupational•Public	<ul style="list-style-type: none">•Physical Protection

To monitor these seven cornerstones of safety, the NRC used two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW, or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by colors representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, or RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plan, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.