

APPENDIX B
U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-285/83-11

License: DPR-40

Docket: 50-285

Licensee: Omaha Public Power District
1623 Harney Street
Omaha, Nebraska 68102

Facility Name: Fort Calhoun Station

Inspection At: Fort Calhoun Station, Blair, Nebraska

Inspection Conducted: April 1-30, 1983

Inspector: L.A. Yandell
L. A. Yandell, Senior Resident Reactor Inspector

5/9/83
Date

Approved: W.D. Johnson
W. D. Johnson, Chief, Reactor Project Section C

5/16/83
Date

Inspection Summary

Inspection conducted April 1-30, 1983 (Report: 50-285/83-11)

Areas Inspected: Routine, announced inspection of operational safety verification, review of plant operations, startup testing, surveillance testing, maintenance activities, and followup of IE Bulletins. The inspection involved 77 inspector-hours onsite by one NRC inspector.

Results: Within the six areas inspected, one violation was identified (violation - failure to follow procedures - paragraph 2).

DETAILS

1. Persons Contacted

*W. G. Gates, Manager, Fort Calhoun Station
G. R. Peterson, Supervisor, Maintenance
J. J. Fluehr, Reactor Engineer
M. R. Core, Supervisor, I&C and Electrical Field Maintenance
R. J. Mueller, I&C Engineer
D. W. Dale, Senior QC Inspector
A. W. Richard, Supervisor, Technical
G. R. Kopecky, Quality Assurance Inspector
C. J. Brunnert, Acting Supervisor, Quality Assurance Operations
L. T. Kusek, Supervisor, Operations

*Denotes attendance at the exit interview.

The NRC inspector also talked with, and interviewed, other licensee employees during the inspection. These employees included licensed and unlicensed operators, craftsmen, engineers, and office personnel.

2. Operational Safety Verification

The NRC inspector performed activities as described below to ascertain that the facility is being maintained in conformance with regulatory requirements and that the licensee's management control system is effectively discharging its responsibilities for continued safe operation.

- a. The NRC inspector made several control room observations to verify proper shift manning, operator adherence to approved procedures, adherence to selected Technical Specifications, and operability of the reactor protective system. Selected logs, records, recorder traces, annunciators, panel indications, and switch positions were reviewed to verify compliance with regulatory requirements. The licensee's equipment control was reviewed for proper implementation by reviewing the maintenance order and tag-out logs, and by verifying selected safety-related tag-outs. Several shift turnovers were observed and shift turnover sheets were reviewed during this inspection period.

During a review of the annunciator status log on April 4, 1983, the NRC inspector identified several discrepancies with actual plant conditions. In particular, Annunciator A11-A5L had been cleared in the log, but the annunciator card had not been replaced and an open maintenance order (MO) was referenced on the tag; and Annunciators A13-B5U, A2-C3L, and A2-C4L cards were pulled and stickers attached to the alarm windows, but no log entries were made. This failure to adhere to the instructions of Standing Order O-40, "Annunciator Status Changes," is an apparent violation against Technical Specification 5.8.1 which requires

that, "written procedures . . . be established, implemented, and maintained that meet or exceed the minimum requirements of Sections 5.1 and 5.3 of ANSI N18.7-1972, and Appendix A of USNRC Regulatory Guide 1.33 . . . ," (50-285/8311-01). In addition, several annunciator windows still had stickers attached even though the annunciator had been made operational and a closeout entry made in the log. It appeared to the NRC inspector that this might be misleading to the operator during an actual alarm condition. In discussions with the operators, the NRC inspector determined that they were cognizant of annunciator status and noted that the shift turnover sheet specifically identified this item. It is apparent that operations personnel keep informed of annunciator status and have a genuine interest in staying current but the annunciator status log, in its present format and use, does not appear to be the proper vehicle for accomplishing this task.

- b. The NRC inspector toured the plant at various times to assess plant and equipment conditions. The following items were observed during these tours:
 - . general plant conditions
 - . vital area barriers not degraded or appropriately manned by security personnel
 - . adherence to requirements of radiation work permits (RWPs)
 - . proper use of protective clothing and respirators
 - . plant housekeeping and cleanliness practices including fire hazards and the control of combustible material
 - . work activities being performed in accordance with approved activities
 - . physical security
 - . HP instrumentation is operable and calibrated
- c. The NRC inspector verified operability of the auxiliary feedwater system by performing a walkdown and switch verification of the accessible portions of the system in accordance with Checklist ST-FW-1-CL-A.
- d. During this reporting period the licensee shipped the vessel surveillance capsule that had been removed during the outage. The NRC inspector reviewed Special Procedure SP-GCASK-1, "Shipment of CNSI Cask CMS-1-13G (Model No. GE 1600)," covering this work and noted that QC hold points were established, a separate RWP was issued to cover this

work, special equipment was identified and provided, and report/record requirements were enumerated. It was verified that a job briefing was held, and the actual task was completed on Saturday, April 23.

The licensee experienced a spill of Safety Injection Refueling Water Tank (SIRWT) liquid in the early hours of April 22, and about 1000 gallons of water came up through the SIRWT cover onto the southwest corridor (1007 level) of the auxiliary building, the railroad siding (Room 25), and under the metal rollup door onto the outside apron for an area of about six by eight feet. A leaking demineralized water hose had caused the fuel transfer canal to fill and raise the level in the spent fuel pool through leakage by the refueling gate. The licensee maintained the level in the spent fuel pool by pumping to the SIRWT while investigating the source of leakage. Once the source was identified, samples in the spent fuel pool and SIRWT were taken to ensure that boron concentrations were above Technical Specification limits. Water continued to be pumped to the SIRWT until the high level alarm actuated. At this point, pumping was secured but the isolation valve was not closed immediately, allowing water to continue draining (or siphoning) to the SIRWT. This additional draining completely filled the SIRWT and forced water up through the SIRWT cover onto the corridor floor. The auxiliary building watchstander discovered this situation and actions were taken immediately to contain the water. The activity of the water coming from the SIRWT was estimated at 9.26×10^{-3} uCi/cc based on the last sample taken. The corridor level contamination was more than 2,000,000 counts/min., and activity level of the dirt in the railroad tracks by the rollup door was 10^{-2} uCi/gm. Decontamination activities were started and the affected area roped off and posted. Most of the water that leaked under the rollup door concentrated in the dirt found in the railroad tracks and the track bedding. This material was removed and the apron area decontaminated to releasable levels. The NRC inspector reviewed this incident with plant personnel and evaluated their decision not to classify this as a significant event in accordance with 10 CFR 54.72. The licensee's swipe survey records were reviewed, and the NRC inspector performed independent surveys outside the rollup door to confirm that decontamination to acceptable levels had been accomplished. The licensee is preparing an Operating Incident on the event for PRC review and evaluation. Based on discussions with Region IV personnel and his review of the available information, the NRC inspector concurred with the licensee's decision not to classify this as a significant event. Final decontamination of the outside apron was completed by Saturday, April 23, while cleanup work continued in the corridor and railroad bay.

The NRC inspector reviewed Discharge Permit 83085 for the discharge of B Monitor Tank and verified that Technical Specification limits were being met, that appropriate safety functions had been tested, and that the required chemical analyses had been performed.

- e. The NRC inspector attended part of the followup training for operators on Cycle 8 modifications. As an aid to the operator, the instructor provided a copy of the marked-up Cycle 8 index to identify those operating procedures impacted by each modification. This was a followup to a discussion with the licensee as described in NRC Inspection Report 83-09, Paragraph 2, regarding additional training on Cycle 8 modifications for the operators after the outage.

As a followup to NRC Inspection Report 83-10, the NRC inspector reviewed the lesson plan for shift supervisor actions in an emergency, and verified that the training was performed. The Shift Supervisor Emergency Duty Officer Checklist was reviewed for completeness and accuracy, and the NRC inspector verified that the checklist (with the appropriate procedures) had been gathered into a notebook and placed in the shift supervisor's office for his use.

No other violations or deviations were identified.

3. Review of Plant Operations

The NRC inspector attended a startup meeting called by the licensee on April 1, to review prerequisites prior to startup. Items covered included the jumper and bypass log, surveillance tests, the tag-out log, valve lineup status (OP-1, "Master Checklist for Startup or Trip Recovery"), modifications and system acceptance committee status, procedure changes, the annunciator status log, and Quality Assurance requirements. The NRC inspector reviewed OP-1 independently and verified that prerequisites for criticality (through Step IV 6) had been completed and signed off. Special Procedure SP-PRCPT-1, "Post Refueling Core Physics Testing and Power Ascension," was issued to cover plant activities from startup through physics testing to full power operation. The NRC inspector verified that the prerequisites and initial conditions to SP-PRCPT-1 had been completed and properly signed off by the Plant Review Committee (PRC). The NRC inspector observed the initial startup performed in accordance with Section F.1 of SP-PRCPT-1, and criticality was established at about 4:30 p.m. on April 2. It was determined that Control Element Drive Mechanism (CEDM) No. 6 would not drive. All CEDM's were inserted and the drive motor for No. 6 unit was replaced. During the plant startup, the NRC inspector verified that the Cycle 8 Technical Specifications (Amendment No. 70 to the facility license) were in place and that ST-PRCPT-1 conformed to these new requirements.

No violations or deviations were identified.

4. Startup Testing

Low power physics tests for the Cycle 8 core were covered by SP-PRCPT-1, Sections F.2 through F.12. The NRC inspector observed various sections of the test being performed and verified that the results were within the acceptance criteria established in Appendix D to SP-PRCPT-1. This infor-

mation was reviewed and signed off by the PRC on April 5, and this approval gave authorization to proceed with the power ascension section (F.13) of the procedure. Section F.13, "Escalation of Power," has been in progress the remainder of this reporting period. The NRC inspector observed various steps of the power escalation procedure and a sampling of the related tests. ST-RPS-13, F.1, "Incore/Excore Calibration," was performed at about 30 percent power level to compare core analysis data with excore information and calibrate the linear power subchannels. The NRC inspector observed the test and verified that the work was performed by qualified personnel, using the current approved procedure. Special Procedure SP-SHAP-1, "Shape Annealing Factor Verification," was performed to verify the value of the Shape Annealing Factors used in the Reactor Protective System. This was a new procedure developed for the Cycle 8 power escalation, and the NRC inspector observed portions of the test, the recording of data, and plotting of Axial Shape Index (ASI) versus time. It was verified by the NRC inspector that SP-SHAP-1 had been formally reviewed and signed off by the PRC prior to use.

No violations or deviations were identified.

5. Surveillance Testing

The NRC inspector witnessed portions of the following surveillance test activities:

- a. Safety Injection/Containment Spray Pumps and Valves Check (Monthly)
ST-SI/CS-1, F.1 for Pump SI-1A
- b. Safety Injection Actuation (Monthly) ST-ESF-2, F.1

In the above surveillance tests the NRC inspector verified, where applicable, that:

- . testing was scheduled in accordance with Technical Specification requirements
- . procedures were being followed
- . calibrated test equipment was being used
- . qualified personnel were performing the tests
- . limiting conditions for operation were being met
- . test data were being accurately recorded

Revised Technical Specification 3.1, Table 3-2, Items 22.a, b, c, and d, identified new surveillance testing to be performed on auxiliary feedwater instrumentation and circuitry for the first time this outage. The NRC inspector verified that new procedures had been written and approved by the PRC, and that the Technical Specification requirements had been met. The new procedures are Sections F.3, "Auxiliary Feedwater Sensors," and F.4, "System Functional Test of Auxiliary Feedwater Initiation Circuits," to Surveillance Test ST-FW-3, "Auto Initiation of Auxiliary Feedwater."

No violations or deviations were identified.

6. Maintenance Activities

The NRC inspector witnessed portions of the work performed on the following maintenance items:

- a. MO 19242, "Reactor Coolant Flow Transmitter." A wire was found broken causing a faulty signal. The NRC inspector observed the final testing of the repaired channel and noted that qualified personnel performed the work, the retest was done using an approved procedure, and Quality Control (QC) was present to witness operability.
- b. MO 19920, "AC-3B Motor." Component Cooling Water Pump AC-3B was found to have a burned out motor when plant operators noted abnormal operating characteristics. The motor was removed to be sent to Omaha for repairs placing the plant under a seven-day Technical Specification action statement. The NRC inspector verified that the MO was correctly filled out and approved, and that qualified personnel were assigned to the job. Tag-Outs 83-888 and 83-889 were verified to be properly filled out and the tags hung as required. The motor was returned to service within the limits of the seven-day action statement, and the NRC inspector verified that the proper surveillance test was run to prove operability.
- c. MO 20002, "CH-328 Leaks." CH-328, the relief valve on the recirculation line to Boric Acid Storage Tank CH-11B was found to be leaking at the stem. The NRC inspector accompanied the craftsman inspecting for the leak while running the pump. It was noted that the shift supervisor reviewed the appropriate Technical Specification requirements and limitations before allowing the valve to be tagged out for maintenance. The NRC inspector reviewed the MO for completeness and proper signoffs, and verified that an approved maintenance procedure was attached. A separate RWP was issued for this job, and QC hold points were established. The NRC inspector observed the removal of the valve, noted that the lines were capped as required by the procedure, and observed that proper HP precautions were taken. At the completion of the job, the NRC inspector reviewed the completed procedure and verified that the relief valve had been tested and witnessed by QC. The NRC inspector observed the reinstallation of the valve, the QC inspec-

tion, and the leak check performed. Tag-Out 83-294 was cleared and the valve returned to service after the heat tracing and lagging were reinstalled.

- d. MO 19969, "Reactor Protective System (RPS) Channel D." A malfunction occurred in which channel trips on High Power, TM/LPT, and Axial Power Distribution were caused whenever the power cord was inserted into Trip Unit No. 5. These channels were bypassed, putting the RPS into a two-out-of-three protection logic for those specific trips. The shift supervisor was properly notified, and qualified personnel were assigned to troubleshoot the problem. The NRC inspector noted that the MO was correctly filled out and approved, and that QC hold points were established to witness operability testing.
- e. MO 19999, "Feed Regulating Valve Erratic Operation." During initial startup testing, FCV-1101 was found to be vibrating excessively. The operators were able to stop the vibration by opening the bypass valve which caused FCV-1101 to go to a new position. Vender representatives have been called and OPPD engineers are reviewing the situation. After tightening up on the packing the vibration was eliminated, but the licensee is continuing to evaluate the matter and operators have been cautioned to be alert for a possible recurrence of the problem.
- f. MO 19162, "Rebuild Reactor Coolant Pump (RCP) Seals." The NRC observed part of the rebuilding of one RCP seal and verified that a qualified craftsman was performing the work using an approved procedure. It was determined by the craftsman that several of the steps toward the end of MP-RC-3-3, "Reactor Coolant Pump Seal Cartridge Assembly," needed to be rewritten and a procedure change would be submitted to cover this update. The NRC inspector noted that proper HP precautions were being observed in handling the seal cartridge assemblies. The NRC inspector verified later that a procedure change had been written and approved for use in completing this work, and was incorporated into the next revision to the procedure.

No violations or deviations were identified.

7. Followup of IE Bulletins

IE Bulletin 83-04, "Failure of the Undervoltage Trip Function of Reactor Trip Breakers." This bulletin was issued on March 11, 1983, and identified recent failures of General Electric AK-2 Type Circuit Breakers. The bulletin described actions to be taken by all PWR licensees with other than Westinghouse DB Type Breakers which were covered in IE Bulletin 83-01. Although the licensee has neither type breaker in its RPS trip function, OPPD Letter LIC-83-076, dated March 28, 1983, responded to the five action items in the bulletin. The NRC inspector verified that the RPS undervoltage trip function was tested per Surveillance Test ST-RPS-10, "Manual Trip Channels." The licensee has reviewed the manufacturer's recommenda-

tions for preventive maintenance on the clutch power supply circuit breakers and the "M" Contactors, and incorporated this information into Maintenance Procedures MP-RPS-Breaker, "Maintenance of Clutch Power Supply Breakers," and MP-RPS-M-Contactor, "Maintenance of M-Contactors for Clutch Power Supplies." The NRC inspector verified that these maintenance procedures had been written, reviewed, and issued; and he observed the training conducted for licensed operators regarding the Salem and San Onofre events.

As a result of this review and the licensee's response to the Regional Administrator, this item is considered closed.

IE Bulletin 82-04, "Bunker Ramo Primary Containment Electrical Penetration Assemblies." OPPD Letter LIC-83-007, dated January 12, 1983, indicates that no Bunker Ramo Company penetration assemblies are installed or presently planned for use at the Fort Calhoun Station. The NRC inspector has reviewed the licensee's response and concluded that no further action on this bulletin is required. This item is closed.

8. Exit Interview

The NRC inspector met with the Manager, Fort Calhoun Station on May 4, 1983, to summarize the scope and findings of the inspection.