APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION

REGION IV

NRC Inspection Report: 50-285/83-37 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: December 1-31, 1983

Inspector: LA Yandell 1/6/84
L. A. Yandell, Senior Resident Reactor Inspector Date

Approved: W D Johnson 1/10/84
W. D. Johnson, Chief, Reactor Project Section C Date

Inspection Summary

Inspection Conducted December 1-31, 1983 (50-285/83-37)

Areas Inspected: Routine, announced inspection of operational safety verification, surveillance testing, maintenance activities, cold weather preparations, and followup of IE Bulletins. The inspection involved 69 inspector-hours onsite by one NRC inspector.

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

DETAILS

1. Persons Contacted

W. C. Jones, Division Manager, Production Operations
*W. G. Gates, Manager, Fort Calhoun Station
L. T. Kusek, Supervisor, Operations
J. F. Gass, Training Supervisor
F. E. Swihel, Training Coordinator
A. W. Richard, Supervisor, Technical
M. R. Core, Supervisor, Maintenance
F. K. Smith, Plant Chemist
J. M. Mattice, Plant Health Physicist

*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.

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 following safety-related systems by performing a walkdown and switch verification of the accessible portions of the system:

- Safety Injection Tanks and Leakage System per Checklist SI-1-CL-C
- Plant Electrical Distribution per Checklist EE-2-CL-A
- 480V Bus Distribution per Checklist EE-2-CL-D

d. The NRC inspector reviewed the plant jumper log and verified that it was being controlled in accordance with Standing Order O-25, "Electrical Jumpers Control." It was verified that Form FC-66 was properly filled out and approved for each jumper installed, that jumper tags were installed as required, and that periodic reviews of the jumper log were being conducted. The NRC inspector verified the installation of the following jumpers:

- 83-009 - Wires 102-1 and 102-2 lifted from CB1/2/3, HH74
- 83-010 - Jumper TB-5, Terminal 4 to TB-5, Terminal 8 at AI-120
- 83-012 - Sigma meter for FIC 1538a, Points 9 & 10 shifted to 11 & 12 at AI10/11
- 83-015 - lifted shield from KK-33, for LC-101X at CB1/2/3
- 83-016 - lifted shield from HH-50, for LC-101Y at CB1/2/3
- 83-025 - wire removed from Point A-S1 of recorder UR113/115 at CB-4 auxiliary panel
- 83-026 - wire removed from Point A-S1 of recorder UR105/123 at AI-31E

- 83-027 - wire lifted at Junction Box TP(E)3-5, at AI-31E
- 83-049 - lifted shield wire for Computer Point LC-101X in CB1/2/3, KK-30

e. The NRC inspector reviewed Containment Purge Permit CP-83043 and verified that the release was properly performed. The release form, FC-212, was properly filled out and approved. Automatic isolation of the discharge relief valves was tested in accordance with OI-VA-1 using RM-060. Required instruments were verified operable, the stack flow integrator reading was recorded and the effluent monitors were operational. Exhaust fans were operating as required by the permit, and the X/Q was calculated and recorded by the operators due to the inoperability of the meteorological tower.

No violations or deviations were identified.

3. Surveillance Testing

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

a. ST-CEA-1, F.6 (Monthly) Secondary CEA Position Indicating System PDIL, Deviation, Out-Of-Sequence, and Overlap Monitoring System Test

b. ST-ESF-6, F.2 (Monthly) Diesel Generator Check

c. ST-ESF-2, F.1 (Monthly) Channel "A" Safety Injection Actuation Signal Test

d. ST-ESF-4, F.1 (Monthly) Channel "A" Containment Spray Actuation Signal Test

e. ST-ESF-13, F.1 (Monthly) Channel "A" Recirculation Actuation Signal Test

f. ST-RA-1, F.1 (Weekly) Reactivity Anomalies - Reactivity Balance

g. ST-RM-5, F.1 (Quarterly) and F.2 (Semi-annual) Radioactive Material Sources Surveillance. In reviewing this surveillance test, the NRC inspector examined the Radioactive Source Log to verify that entries had been properly made and the results of smear tests recorded. There were several minor typographical errors in the procedure but no discrepancies existed between it and the Radioactive Source Log. Changes to the radioactive material source inventory occurred during this surveillance period and changes to the Radioactive Source Log were made in accordance with HP Procedure RPP-17, "Radioactive Source Log Maintenance and Use." The NRC inspector reviewed the

procedure changes being submitted for the surveillance tests and will verify at the next quarterly/semi-annual audits that these changes had been properly entered.

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

No violations or deviations were identified.

4. Maintenance Activities

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

a. Maintenance Order (MO) 22396, "Sub-Channel Deviation." All the sub-channel deviation lights were on for all the safety channels. The NRC inspector reviewed the MO and noted that it was properly signed off and approved, that qualified personnel were assigned to the job, and that appropriate Technical Specifications were referenced. The problem was found to be the switch on Channel "D" and was corrected after the switch was cycled a few times, apparently cleaning the contacts. QC witnessed operability of the switch and channels, and the licensee has elected to change out the switch at the next refueling outage. The MO will remain open pending this change, and the NRC inspector will followup that this work is factored into the schedule and accomplished during the 1984 outage.

b. MO 22635, "Fire Main." During surveillance testing of the No. 2 Diesel Generator, a small section of the sprinkler header froze up from the cold air being drawn in for the engine. The NRC inspector observed that the section of the line was isolated immediately after the control room received indication of flow in the header and that a fire watch was posted. Tag-Out 83-1565 was issued to cover this work and the fire insurers were called. A section of line was replaced and the line leak checked that same day. The NRC inspector

verified that the MO was properly closed out and reviewed, and that the tags were cleared. An Engineering Evaluation and Review (EEAR) has been issued to address the freezing problem during winter months when the diesel generator must be run for an hour as part of a routine surveillance test.

c. MO 22629, "Fire Detector." A detector in Fire Detection Zone 37, (Raw Water Pump Room area) was found inoperable. The NRC inspector reviewed the MO for completeness and accompanied the electrician who worked on the detector. It was noted that the appropriate Technical Specification was referenced, that qualified personnel were assigned to the job, that the correct Calibration Procedure CP-FDZ-37-1 was used, and that QC had verified the test equipment in calibration. After repairs were complete it was observed that a QC representative was present to verify operability and signoff the appropriate sections of the MO.

d. MO 22661, "B Channel Tc and T cold cal." It was observed that RPS Channel "B" T cold and T cold cal were drifting upward while the other channels remained constant. The NRC inspector verified that the MO was signed off properly, that QC hold points had been established, that the correct Technical Specification was referenced, and that qualified personnel were assigned to the job. A PRC approved procedure was generated and attached to the MO. The referenced drawings were identified and present at the job site. The safety evaluation was attached and the procedure called for Surveillance Tests ST-RPS-4, F.2 and ST-SMM-1, F.1 to be performed after work was complete. The NRC inspector observed the repairs being performed and noted that spare parts information was recorded on the MO. When repairs were completed, the above referenced surveillance tests were performed satisfactorily to verify operability.

e. SRDCO 83-54/EEAR FC-80-25, "Spent Fuel Storage Rack Modification." Work continued on the modification this month, and the NRC inspector reviewed the progress to date. The Spent Fuel Pool Reracking Procedure MR-FC-80-25 was present at the work site and was being kept current. The leveling data log sheet and the existing rack removal procedure signoff sheet were both complete and signoffs current. Procedure Change 11336 was available with the procedure and had been entered properly. At the close of this reporting period 15-out-of-21 old racks had been removed, and 6-out-of-12 new racks had been installed. One of the old racks was in the cask decontamination area for cleaning and packaging, two of the old racks were packaged and in the railroad bay waiting for shipment, and the remainder have been shipped offsite. The licensee expects to complete this job early in 1984, before the refueling outage.

No violations or deviations were identified.

5. Cold Weather Preparations

IE Bulletin 79-24 was issued on September 27, 1979, to identify problems at various plants resulting from frozen instrument and process lines. All licensees were directed to "review their plants to determine that adequate protective measures have been taken to assure that safety-related process, instrument, and sampling lines do not freeze during extremely cold weather." OPPD completed this review and in their letter of October 31, 1979, to Region IV stated that all safety-related process, instrument, and sampling lines "are located either in heated buildings or buried in the ground well below the frost line." This has been a month of record low temperatures for this area, and the NRC inspector has been reviewing the plant's capability to handle cold weather. In light of the original plant design criteria and the review conducted in 1979, the licensee has no formal procedure for shifting the plant to cold weather operations. The NRC inspector could identify no problems to safety-related equipment and piping from cold weather during the previous two winters. During this record setting winter, two problems have been experienced which are weather related. The condensate storage tank is located outside by the intake structure, and one of the level instruments was freezing up. The existing heat tracing was not sufficient and the problem was corrected when additional heat tracing was provided. A second problem occurred when Diesel Generator No. 2 was run for its routine surveillance test. It was found that drawing in -20^{0} to -25^{0}F air for the diesel was causing a short section of the fire system sprinkler line to freeze. The licensee had to replace a section of pipe that split and this maintenance effort is discussed in section 4 of this report. An EEAR has been issued to address this matter and the NRC inspector will followup that this design deficiency is corrected.

No violations or deviations were identified.

6. IE Bulletin Followup

a. IE Bulletin 79-21, "Temperature Effects on Level Measurements." Licensees were required to evaluate liquid level measuring systems within containment that initiated safety actions or were used to provide post-accident monitoring information to determine the effect of post-accident ambient temperatures on these measuring systems. On the basis of this review and evaluation, the licensee was to revise emergency procedures as necessary to ensure that operators are aware of the potential for and the magnitude of erroneous level signals. OPPD completed this review and in their letter of September 12, 1979, provided responses to the NRC requests. In their response to item 4, the licensee committed to incorporating "specific information relating corrections that should be applied to level measurements by plant operators during post-accident monitoring and to assure that all applicable curves, tables, etc. relating level measuring correction

factors are available." This effort was completed on November 14, 1979. The NRC inspector has reviewed the emergency procedures and verified that the appropriate steps and notes have been incorporated, and that the referenced figures are available in the Technical Data Book, Section III. This item is closed.

b. IE Bulletin 79-27, "Loss of Non-Class 1-E Instrumentation and Control Power System Bus During Operation." The licensee was required to review Class 1-E and non-Class 1-E buses supplying power to safety and nonsafety-related instrumentation and control systems which could affect the ability to achieve a cold shutdown condition. Upon completing this review, OPPD was to modify procedures and/or propose design modifications as necessary to correct problem conditions. The licensees evaluation and response were contained in OPPD's letters of February 21, 1980, and March 17, 1980, to NRC Region IV. In these responses, OPPD made the following commitments:

(1) Provide direct operator indication of loss of nonsafety-related buses. This was accomplished during the 1981 refueling outage and four indicating lights are now present on Control Room Panel CB-20.

(2) Prepare procedure to enable operators to achieve a cold shutdown condition upon loss of power to each Class 1-E and non-Class 1-E bus supplying power to safety and nonsafety-related instrument and control systems. To accomplish this, OPPD revised EP-18, "Loss of Instrument Bus Power," and supplemented this with a detailed cold shutdown procedure in Section V.10 of the Technical Data Book.

(3) Implement design modifications to address two specific areas identified in the review:

- The loss of DC Bus No. 2 caused Loop Charging Valves HCV-238 and 239 to fail "open", and Auxiliary Spray Valve HCV-240 to fail "closed". This problem was resolved during the 1983 refueling outage when redundant valves were installed in these lines as part of the Long Term Core Cooling Modification MR-FC-79-165.

- The loss of Bus AI-40B would not allow the Shutdown Cooling Valves HCV-347 and 348 to be opened. Since shutdown cooling is not required until the plant is less than 300°F and less than 265 psig, the licensee developed a procedure for making the necessary jumpers to allow HCV-348 (the valve inside the containment) to be opened. This procedure is contained in EP-24A, "Forced Evacuation of the Control Room Due to Fire," Appendix B.

The NRC inspector has reviewed these design modifications and revised procedures to ensure that the licensee's commitments have been implemented. This item is closed.

7. Exit Interview

The NRC inspector met with the plant manager on January 4, 1984, to summarize the scope and findings of the inspection.