APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-285/88-16 Operating License: DPR-40

Docket: 50-285

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

Facility Name: Fort Calhoun Station (FCS)

Inspection At: FCS, Blair, Nebraska

Inspection Conducted: May 1-31, 1988

Inspector: for R.P. Mullikin 6/29/88
P. H. Harrell, Senior Resident Reactor Inspector Date

for R.P. Mullikin 6/29/88
T. Reis, Resident Reactor Inspector Date

Approved: T. F. Westerman 6/30/88
T. F. Westerman, Chief, Project Section B Date
Division of Reactor Projects

Inspection Summary

Inspection Conducted May 1-31, 1988 (Report 50-285/88-16)

Areas Inspected: Routine, unannounced inspection including operational safety verification, plant tours, safety-related system walkdown, monthly maintenance observations, monthly surveillance observations, security observations, radiological protection observations, and in-office review of periodic and special reports.

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

DETAILS

1. Persons Contacted

*W. Gates, Plant Manager
*M. Core, Supervisor, Maintenance
*T. Dexter, Supervisor, Security
*J. Fisicaro, Supervisor, Nuclear Regulatory and Industry Affairs
*T. Patterson, Supervisor, Technical
*C. Simmons, Plant Licensing Engineer
D. Trausch, Supervisor, Operations
*A. Richard, Manager, Quality Assurance
*R. Scofield, Supervisor, Outage Projects
*J. Smith, Manager, Security Services
*M. Tesar, Supervisor, Nonlicensed Training
*S. Willrett, Supervisor, Administrative Services and Security

*Denotes attendance at the monthly exit interview.

The inspector also contacted other plant personnel, including operators, technicians, and administrative personnel.

2. Plant Status

FCS operated at 100 percent steady-state power during this inspection period. As of May 31, 1988, FCS had been in continuous operation for 359 days. During May, only routine preventive maintenance and surveillance testing was performed.

3. Operational Safety Verification (71707)

The NRC inspectors conducted reviews and observations of selected activities to verify that facility operations were performed in conformance with the requirements established under 10 CFR, the licensee's administrative procedures, and the Technical Specifications (TS). The NRC inspectors made several control room observations to verify the following:

- Proper shift staffing
- Operator adherence to approved procedures and TS requirements
- Operability of reactor protective system and engineered safeguards equipment
- Logs, records, recorder traces, annunciators, panel indications, and switch positions complied with the appropriate requirements
- Proper return to service of components

- Maintenance orders (MO) initiated for equipment in need of maintenance

- Appropriate conduct of control room and other licensed operators

- Management personnel toured the control room on a regular basis

No violations or deviations were identified.

4. Plant Tours (71707)

The NRC inspectors conducted plant tours at various times to assess plant and equipment conditions. The following items were observed during the tours:

- General plant conditions, including operability of standby equipment, were satisfactory.

- Equipment was being maintained in proper condition, without fluid leaks and excessive vibration.

- Plant housekeeping and cleanliness practices were observed, including no fire hazards and the control of combustible material.

- Performance of work activities was in accordance with approved procedures.

- Portable gas cylinders were properly stored to prevent possible missile hazards.

- Tag-out of equipment was performed properly.

- Management personnel toured the operating spaces on a regular basis.

On May 21, 1988, the NRC inspector toured the intake structure. It was noted that the licensee's equipment labeling upgrade project is nearly complete in this structure. The NRC inspector observed that the new labeling provided much greater ease of identification of components. The NRC inspector views this enhancement as a significant step towards the licensee's long-term plant enhancement project.

On May 24, 1988, during a tour of the auxiliary building, the NRC inspector noted marked improvement in housekeeping in various areas of the auxiliary building. In particular, the vicinity surrounding the spent fuel pool, which was noted as needing attention in NRC Inspection Report 50-285/88-11, and Room 59, which was noted as needing attention in NRC Inspection Report 50-285/87-24, were found to now represent acceptable levels of housekeeping.

No violations or deviations were identified.

5. Safety-Related System Walkdown (71710)

The NRC inspector walked down accessible portions of the following safety-related system to verify system operability. Operability was determined by verification of selected switch positions. The system was walked down using the drawing and procedure noted.

- 120-Volt AC Power (Procedure OI-EE-4, Checklist A, Revision 35, and Figure 8.1-1 of the Updated Safety Analysis Report, Revision 33)

During the walkdown, the NRC inspector noted no discrepancies between the drawing, procedure, and plant as-built conditions for the selected areas checked.

No violations or deviations were noted.

6. Monthly Maintenance Observations (62703)

The NRC inspectors reviewed and/or observed selected station maintenance activities on safety-related systems and components to verify the maintenance was conducted in accordance with approved procedures, regulatory requirements, and the TS. The following items were considered during the reviews and/or observations:

- The TS limiting conditions for operation were met while systems or components were removed from service.
- Approvals were obtained prior to initiating the work.
- Activities were accomplished using approved MOs and were inspected, as applicable.
- Functional testing and/or calibrations were performed prior to returning components or systems to service.
- Quality control records were maintained.
- Activities were accomplished by qualified personnel.
- Parts and materials used were properly certified.
- Radiological and fire prevention controls were implemented.

The NRC inspector reviewed and/or observed the following maintenance activities:

- Annual oil change for Charging Pump CH-1B (PM 8803369 and 8803371)
- Repair of Traveling Screen CW-2F in circulating water intake structure (MO 875090)

- Cleaning, inspection and repair of 4.16kV Breaker AC-10B (MO 880224)

- Disposal of old HEPA filters removed from VA-39A, B, and C in April 1988 (MO 881993)

A discussion of each item is provided below.

a. On May 25, 1988, the NRC inspector observed portions of the annual oil change operation for Charging Pump CH-1B. The NRC inspector noted that the pump had been properly mechanically and electrically isolated and tagged by operations personnel prior to actual work initiation.

   The operation was begun at the beginning of the day shift. At the time of the mid-morning break, the workmen had the spent oil drained from its casing. The NRC inspector noted that the workmen left the spent oil, approximately 8 gallons, unattended in four buckets adjacent to operating Charging Pump 1A while they were on break. The NRC inspector does not consider this work practice to be compatible with responsible control of combustible materials. However, the incident did not pose any significant safety hazard since the charging pumps are not an essential component required for safe shutdown of the reactor. The NRC inspector estimates that the oil was left unattended for approximately one half hour.

   The shift supervisor was notified of the situation and the workers were recalled to the jobsite to finish the task. The oil change was completed without incident.

b. On May 15, 1988, the NRC inspector noted that the condition that workmen left the upper level of the intake structure for the weekend was unacceptable. Workers performing screen repair per MO 875090 had set up shop directly atop the grating which was overhead of Raw Water Pump AC-10D. Small tools and considerable debris were lying directly on the floor grating. This situation left Pump AC-10B vulnerable.

   The NRC inspector notified the shift supervisor of this concern. The shift supervisor indicated that he would evaluate the situation. The following day, the NRC inspector revisited the area and found no work in progress and the same conditions as the previous day. The NRC inspector again notified the shift supervisor who admitted he was not able to evaluate the situation the previous day. The NRC inspector also notified the supervisor-mechanical maintenance. The area was promptly cleaned up.

c. On May 24, 1988, the NRC inspector observed electrical maintenance personnel performing preventive maintenance on Breaker 1A4-11 for Raw Water Pump AC-10B. The NRC inspector observed removal of the 4.16-kV breaker. Its removal required the opening of the fire barrier doors between east and west switchgear rooms. The maintenance personnel properly attended to fire watch duties during

the removal. The maintenance personnel used an approved preventive maintenance procedure for their work.

The breaker was removed and transported to an approved critical quality equipment (safety-related) storage area for work. The maintenance personnel were observed performing their work in accordance with plant procedures.

d. On May 24, 1988, the NRC inspector observed the packaging of spent high efficiency particulate air (HEPA) filters for disposal. The filters were appropriately placed in a yellow polyethylene bag prior to drumming. The work was appropriately performed in an area designated as contaminated.

No violations or deviations were noted.

7. Monthly Surveillance Observations (61726)

The NRC inspectors observed selected portions of the performance of and/or reviewed completed documentation for the TS-required surveillance testing on safety-related systems and components. The NRC inspectors verified the following items during the testing:

- Testing was performed by qualified personnel using approved procedures.
- Test instrumentation was calibrated.
- The TS limiting conditions for operation were met.
- Removal and restoration of the affected system and/or component were accomplished.
- Test results conformed with TS and procedure requirements.
- Test results were reviewed by personnel other than the individual directing the test.
- Deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The NRC inspectors observed and/or reviewed the documentation for the following surveillance test activities. The procedures used for the test activities are noted in parenthesis.

- Monthly testing of the station batteries (ST-DC-1)
- Quarterly inservice testing of the main steam to auxiliary feedwater pump valves (ST-ISI-MS-1)
- Monthly testing of the reactor coolant low flow trip (ST-RPS-3)

- Monthly testing of the thermal margin/low pressure channels (ST-RPS-4)
- Monthly loading of a diesel generator (ST-ESF-6)
- Biweekly exercising of the control element assemblies (ST-CEA-1)
- Monthly channel check of the core exit thermocouples (ST-CET-1)
- Monthly testing of the pressurizer level control channels (ST-PL-1)
- Monthly testing of the steam generator pressure channels (ST-ESF-11)
- Monthly testing of the PORV/safety valve tailpipe temperature circuits (ST-SVTEMP-1)

A discussion of each surveillance observed is provided below.

a. On May 3, 1988, the NRC inspector observed activities related to verification of the operability of the station batteries. The NRC observed the I&C technicians take the temperature, voltage, and specific gravity of selected battery cells. The NRC inspector observed that the technicians performed the testing in accordance with documented instructions.

b. The NRC inspector witnessed the inservice inspection of Valve YCV-1045A and its associated Check Valve IV-1045A-C. This apparatus serves to isolate main steam from generator 2A to Auxiliary Feedwater Pump FW-10. Valve YCV-1045A is an air-to-close, fail-open design. The test demonstrated that upon loss of instrument air, Valve YCV-1045A can remain in a closed position via the aid of an air accumulator and check valve. The test also demonstrated that Valve YCV-1045A stroked within acceptable limits. The NRC inspector noted that the system functioned as designed. However, it was noted that several of the valves in the portion of the system being tested were not labeled. With the aid of an engineering drawing, the auxiliary building operator was able to correctly identify the components as specified in the procedure. After this observation, the NRC inspector notified the senior reactor operator conducting the test of this deficiency. That evening, temporary identification labels were hung on the specified components.

c. The NRC inspector reviewed the licensee's monthly testing of the reactor coolant low-flow trip channels performed on May 9, 1988. Channel C of the system produced results which were out of tolerance. The I&C technician did not notify the shift supervisor of the out-of-specification instrument. The technician informed his supervisor and both assumed the out-of-specification reading was in the conservative direction. They completed the test and turned the results in for review. The supervisor-technical reviewed the test results on May 11, 1988, and found the discrepancy to be

nonconservative. The unit was recalibrated immediately and placed back in service on May 11, 1988. The nonaction taken by the I&C technician resulted in trip Unit C being technically inoperable for approximately 48 hours. Technical Specification LCO 2.15, Table 2-2, Item No 5.(e), states that an inoperable channel may be bypassed up to 48 hours before it must be placed in a tripped condition. The event was reported by the licensee via the licensee event report system. As of June 2, 1988, the licensee had approved procedure changes for all reactor protection system surveillance tests to prevent recurrence of similar events. Based on the review of the procedure changes performed by the NRC inspector, it appears the licensee's action will prevent problems of inoperability as occurred in the situation described above.

d. On May 23, 1988, the NRC inspector observed the testing of Channels B, C, and D of the thermal-margin/low-pressure trip units. This procedure was performed as written and the hardware functional as designed. After the test was completed, the NRC inspector discussed with the I&C technician, several minor areas where the procedure was unclear or could be improved. The I&C technician agreed with the NRC inspector and stated that he had already submitted a change request and would submit an additional change request to cover all areas discussed. The NRC inspector noted good communication and cooperation between the technician performing the test and the reactor operators.

e. The inspector reviewed the licensee's actions following the trip of Diesel Generator 2. On May 18, 1988, during the performance of ST-ESF-6, Diesel Generator 1 started on reverse current, as designed. The licensee declared Diesel Generator 2 inoperable and issued a 4-hour report of this event as required by 10 CFR Part 50.72.

After the event, the licensee performed extensive troubleshooting of the voltage regulator and governor of Diesel Generator 2. The licensee was unable to duplicate the trip of the diesel generator or determine the root cause. The trip may have been attributed to a possible voltage spike. Subsequently, the surveillance test, ST-ESF-6, was successfully run on May 19, 1988, and Diesel Generator 2 declared operable. The NRC resident inspectors will continue to monitor the operational performance of Diesel Generator 2.

f. On May 23, 1988, the NRC inspector witnessed licensed operators exercising all of the regulatory and shutdown control element assemblies (CEA). The NRC inspector observed all CEAs inserted into the core a minimum of 6 inches, withdrawn to their original position, and the actions documented. The CEA system functioned as designed, giving the operators alarms concerning rod deviation and power dependent insertion limit.

g. On May 24, 1988, the monthly channel check of the core exit thermocouples (CETs) was performed per ST-CET-1. The NRC inspector reviewed the computerized display of temperatures on the quality safety parameter display system. One CET gave an invalid temperature reading. The NRC inspector reviewed Section 2.21 of the TS and found this condition to be acceptable.

h. On May 19, 1988, the NRC inspector witnessed the monthly testing of the pressurizer level control channels per Procedure ST-PL-1. The test was conducted by an I&C technician in conjunction with the onshift operations crew. The test was performed as written and the systems functioned as designed.

i. On May 19, 1988, the NRC inspector independently verified the results obtained by the licensed operators for Procedure ST-SVTEMP-1. This procedure requires the analysis of the temperature sensors on the tailpipes of the primary power-operated relief safety valves to verify they are not leaking. The results obtained were within specification.

j. On May 23, 1988, the NRC inspector witnessed verification of proper steam generator pressure indication by observing the performance of ST-ESF-11. The procedure was performed as written and the equipment functioned as designed.

No violations or deviations were identified.

8. Security Observations (71881)

The NRC inspectors verified the physical security plan was being implemented by selected observation of the following items:

- The security organization was properly manned.
- Personnel within the protected area (PA) displayed their identification badges.
- Vehicles were properly authorized, searched, and escorted or controlled within the PA.
- Persons and packages were properly cleared and checked before entry into the PA was permitted.
- The effectiveness of the security program was found to be inadequate on several occasions when security equipment failure or impairment required compensatory measures to be employed. This will be discussed in detail in Inspection Report 50-285/88-17.
- The PA barrier was maintained and the isolation zone kept free of transient material.

- The vital area barriers were maintained and not compromised by breaches or weaknesses.

- Illumination in the PA was adequate to observe the appropriate areas at night.

- Security monitors at the secondary and central alarm stations were functioning properly for assessment of possible intrusions.

No violations or deviations were identified.

9. Radiological Protection Observations (71709)

The NRC inspectors verified that selected activities of the licensee's radiological protection program were implemented in conformance with the facility policies and procedures and in compliance with regulatory requirements. The activities listed below were observed and/or reviewed:

- Health physics (HP) supervisory personnel conducted plant tours to check on activities in progress.

- Radiation work permits contained the appropriate information to ensure work was performed in a safe and controlled manner.

- Personnel in radiation controlled areas (RCA) were wearing the required personnel monitoring equipment and protective clothing.

- Radiation and/or contaminated areas were properly posted and controlled based on the activity levels within the area.

- Personnel properly frisked prior to exiting an RCA.

No violations or deviations were identified.

10. In-office Review of Periodic and Special Reports (90713)

In-office review of periodic and special reports was performed by the NRC resident inspectors and/or the NRC Fort Calhoun project engineer to verify the following, as appropriate:

- Correspondence included the information required by appropriate NRC requirements.

- Test results and supporting information were consistent with design predictions and specifications.

- Determination that planned corrective actions were adequate for resolution of identified problems.

- Determination as to whether any information contained in the correspondence report should be classified as an abnormal occurrence.

- Correspondence did not contain incorrect, inadequate, or incomplete information.

The NRC inspectors reviewed the following:

- Special report on resolution of Generic Issue 124, auxiliary feedwater system reliability, for the FCS

- Letter endorsing NRC policy statement relating to nuclear power plant access authorization programs, dated May 6, 1988

- Additional change to TS amendment for removal of organization charts from Section 5, dated May 4, 1988

- Letter clarifying position on internal sealing of conduits, dated May 2, 1988

- April monthly operating report, dated May 13, 1988

- Monthly operations report for April 1988, undated

No violations or deviations were identified.

11. Exit Interview

The NRC inspectors met with Mr. W. G. Gates (Plant Manager) and other members of the licensee staff at the end of this inspection. At this meeting, the NRC inspector summarized the scope of the inspection and the findings.