APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-285/87-33

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, 1987

Inspectors: P. H. Harrell, Senior Resident Reactor Inspector — Date: 1-7-88

T. Reis, Resident Reactor Inspector — Date: 1-7-88

Approved: for T. F. Westerman, Chief, Projects Section B — Date: 1-27-88

Inspection Summary

Inspection Conducted December 1-31, 1987 (Report 50-285/87-33)

Areas Inspected: Routine, unannounced inspection including followup on previously identified items, licensee event report followup, operational safety verification, plant tours, safety-related system walkdowns, monthly maintenance observations, monthly surveillance observations, security observations, radiological protection observations, in-office review of periodic and special reports, followup on an onsite event, cold weather preparations, and review of the licensee's program for natural circulation cooldown.

Results: Within the 13 areas inspected, no violations or deviations were identified.

DETAILS

1. Persons Contacted

*R. Andrews, Division Manager, Nuclear Production
*W. Gates, Plant Manager
J. Bailey, Engineer
*C. Brunnert, Supervisor, Operations Quality Assurance
M. Burgraff, Engineer
*M. Core, Supervisor, Maintenance
T. Dexter, Supervisor, Security
*M. Eidem, Manager, Mechanical and Nuclear Engineering
*J. Fisicaro, Supervisor, Nuclear Regulatory and Industry Affairs
J. Foley, Supervisor, I&C and Electrical Field Maintenance
*J. Gasper, Manager, Administrative and Training Services
*L. Gundrum, Plant Licensing Engineer
*B. Hansher, Licensing Engineer
J. Kecy, Acting Reactor Engineer
J. Lechner, Plant Engineer
*T. McIvor, Supervisor, Technical
*K. Morris, Division Manager, Quality Assurance and Regulatory Affairs
*T. Patterson, Supervisor, Technical
G. Roach, Supervisor, Chemical and Radiation Protection
D. Trausch, Supervisor, Operations
S. Willrett, Supervisor, Administrative Services and Security

*Denotes attendance at the monthly exit interview.

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

2. Followup on Previously Identified Items

a. (Open) Severity Level IV Violation 285/8634-03: Failure to operate the waste gas panel (AI-110) in accordance with the approved procedures.

This violation involved the failure of the licensee to properly perform a valve alignment when placing AI-110 in the standby mode. On three occasions during an inspection performed in December 1986, the valve alignment on AI-110 was found to be incorrect.

In response to this violation, the licensee committed to take the following actions. The results of the review performed by the NRC inspector has been included in the discussion of each item.

. Procedures OI-WDG-3, "Waste Gas Sampling System (AI-110) Operation" and CMP-2.2, "Waste Gas Sampling System" were revised to provide concise step-by-step instructions for the technicians when operating AI-110. The revision was issued to eliminate the

requirement for the technician to perform a complete alignment of all system valves after taking a sample. The NRC inspector reviewed Procedures OI-WDG-3 and CMP-2.2 to verify that the changes made by the licensee provided adequate instructions for the operation of AI-110. Based on a review of the procedures, it appeared that the revisions provided adequate and usable instructions.

A review of other procedures used by the chemistry group was performed to verify that the instructions provided were adequate. The results of the review concluded that no additional procedure changes were required.

The NRC inspector, in followup on this item, noted that the procedure review performed by the licensee was not documented. In discussions with licensee personnel about the method used for the review, it appeared that the review was performed even though it was not documented. The NRC inspector reviewed selected procedures to establish that the instructions provided were adequate. No problems were noted.

Discussions were held with the chemistry technicians to stress the importance of verbatim compliance during the performance of evolutions prescribed by procedures. Discussions were also provided to stress the proper steps to be taken if, during the performance of a procedure, the evolution could not be completed in accordance with procedural instructions.

During followup on this item, the NRC inspector again noted that the discussions held with the chemistry technicians were not adhered to. The NRC inspector discussed this item with selected chemistry technicians and determined that each technician was aware of the need for verbatim compliance and the steps to be taken if compliance could not be achieved when performing evolutions.

In response to this violation, the licensee stated that the root cause for this violation was a lack of adequate training. In followup on this element of the licensee's response, it was determined that the licensee had provided additional training for only one of the six chemistry technicians. The nonlicensed training group prepared a lecture; however, only one technician attended the class. In discussions with licensee personnel, it was discovered that management of the chemistry department did not make the technicians available to attend the prepared lecture.

This item remains open pending action by the licensee to provide training to chemistry technicians in the operation of AI-110.

b. (Open) Severity Level IV Violation 285/8702-03: Failure to maintain the procedure for alignment of the breakers on the 480-volt motor control centers (MCC) in an up-to-date condition.

This violation was related to the licensee's failure to maintain the procedure used for alignment of the breakers on the 480-volt MCCs in an up-to-date condition. In response to this violation, the licensee revised and reissued Checklist E of Procedure OI-EE-2, "480-Volt System (Normal Operation)," in May 1987 to correct the discrepancies noted during the walkdown performed by the NRC inspector in January 1987.

During the July through August 1987 inspection, the NRC inspector performed a walkdown of the 480-volt electrical system using the revised checklist. As documented in NRC Inspection Report 50-285/87-20, this violation remained open pending the issuance of another revision to Checklist E. The revision issued in May 1987 still contained deficiencies identified in January 1987 that had not been corrected.

The licensee issued another revision to Procedure OI-EE-2 on November 1987. This revision incorporated Checklists B, C, D, and E of Procedure OI-EE-2 into a single comprehensive checklist, designated as Checklist B. The NRC inspector reviewed the revised Checklist B in conjunction with Figure 8.1-1 of the Updated Safety Analysis Report (USAR) and performed walkdowns of various MCCs. The NRC inspector found that the revised checklist still did not provide adequate instructions for all the electrical breakers on the MCCs. The NRC inspector noted that some safety-related loads were not included on the checklist and there was no overall defined scope as to what should be included on the checklist for normal operation of the 480-volt system.

This item remains open pending the final issuance of a revision to Checklist B that includes instructions for the positioning of all safety-related breakers on the 480-volt MCCs and that accurately reflects the existing loads served by the various MCCs.

c. (Closed) Severity Level V Violation 285/8710-01: A firewatch was not established for a nonfunctional fire barrier in accordance with Technical Specification (TS) requirements.

This item was related to the failure of the licensee to establish a firewatch for the emergency diesel generator room doors and for a fire damper installed between the diesel generator rooms. Hoses were run through the doors and damper causing the fire barriers to be nonfunctional.

To ensure that fire watches are established as required by the TS, the licensee revised Procedure SO-0-38, "Firewatch Duties and Turnover Procedures," to require notification of the shift supervisor and/or security personnel when a fire barrier is inoperable. Upon

notification, a fire watch will be established. The licensee revised Procedure SCP-14, "Patrol Procedures," to require security guards to monitor for nonfunctional fire barriers during their hourly tours through the plant. If a nonfunctional fire barrier is identified, the shift supervisor is notified so that a fire watch can be established. In addition to revising the above procedures, the licensee also revised Forms FC-37, "Daily Fire Door Log," and FC-1006, "Hourly Fire-watch Patrol Log." The forms were revised to record the name of the firewatch assigned to provide assurance that the individual has been appropriately trained and that the individual had not been assigned other duties that would detract from firewatch duties.

The NRC inspector reviewed the actions taken by the licensee, as discussed above. Based on this review, it appeared that the licensee had taken the appropriate actions to ensure that firewatches would be provided when fire barriers became nonfunctional.

d. (Closed) Severity Level IV Violation 285/8715-02: Unauthorized modification of a safety-related system.

This violation was related to the unauthorized installation of tubing and a gage in the containment sump discharge line. The tubing and gage were installed during the 1987 refueling outage and the licensee could not provide documentation to indicate that the modification was performed in accordance with approved instructions. The installation of the gage could not be traced, by the licensee, to any authorized modification, surveillance test, or calibration procedure. The gage and tubing were removed immediately upon notification by the NRC inspector.

At the time of the notification of the problem by the NRC inspector, the licensee conducted a review to determine which onsite group may have installed the tubing and gage. After the review, licensee personnel could not determine which group had installed the gage and tubing. The licensee determined that the gage was not of the type and manufacturer normally used by plant personnel.

To prevent recurrence of this problem, the licensee issued a memo to all personnel with unescorted access to the site. The memo discussed the details of this violation and reminded all personnel that system modifications can only be made when allowed by approved documentation. In addition, the licensee has also included a discussion of this violation in the general employee training program to ensure new employees and contractor personnel are made aware of the cause of this violation.

The NRC inspector reviewed the actions taken by the licensee in response to this violation. The NRC inspector monitored the licensee's activities related to determining the origin of the tubing and gage, at the time the problem was identified, and noted that

adequate followup activities were performed. The NRC inspector verified that each individual had acknowledged the receipt of the memo issued by the licensee that provided information regarding this violation. Based on the review performed and the circumstances related to this violation, it appeared that the licensee took appropriate actions to correct the problem and to prevent recurrence.

e. (Closed) Open Item 285/8729-02: An anomaly was noted during the performance of surveillance testing on the pressurizer level signal.

This open item was related to the actuation of the control board annunciator for emergency feedwater storage tank (EFWST) low-level alarm during performance of the surveillance test, Procedure ST-PL-1, for verifying the accuracy of the pressurizer level signal. At the time of the performance of ST-PL-1, no reason could be established as to why the EFWST low-level alarm was actuated.

The NRC inspector observed the performance of all steps of Procedure ST-PL-1 and noted no similar anomalies. However, during performance of the test, the licensee noted that the strip chart recorder for one channel of pressurizer level did not function properly. The licensee issued Maintenance Order (MO) 875796 for repair of the recorder. Repairs were completed shortly after completion of the surveillance test. In discussions with licensee personnel, it was established that during performance of Procedure ST-PL-1 in November 1987, the level of the EFWST was close to the alarm setpoint. Licensee personnel stated that during performance of Procedure ST-PL-1, slight voltage fluctuations occurred in the annunciator supply voltage which, in turn, caused actuation of the EFWST low-level alarm since the actual level was near the set point.

Since no anomalies occurred during performance of Procedure ST-PL-1, this item is considered closed. The NRC inspectors will observe the performance of this surveillance test during future routine surveillance observation activities.

3. Licensee Event Report (LER) Followup

Through direct observation, discussions with licensee personnel, and review of selected records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with TS.

The LERs listed below are closed:

87-019 Inoperability of fire water system

87-022 Defects in the emergency feedwater storage tank

87-028 Failure to submit a special report in accordance with TS 2.19(7)

A discussion of the review of each LER is provided below:

a. LER 87-019 reported an event where, due to personnel error, the diesel-driven fire pump (FP-1B) was improperly returned to service resulting in one fire pump being inoperable in excess of 7 days and both fire pumps being inoperable for approximately 9 hours. This LER was issued by the licensee as a special report as required by TS 2.19(4)b.

An operator started and ran FP-1B to prove operability following maintenance activities. Prior to the test, the operator shut the discharge valve on FP-1B, as required by Procedure OI-FP-6, "Diesel Pump Fire Test." Upon completion of the test, the operator incorrectly assumed that other maintenance activities were in progress and left the FP-1B discharge valve shut, causing the pump to be inoperable since the pump was isolated from the fire water system. Approximately 8 hours later, the electric-driven fire pump (FP-1A) was removed from service for maintenance. Removal of FP-1A from service caused the fire water system to be inoperable since neither fire pump was available.

During a plant tour made approximately 9 hours after removing FP-1A from service, an operator noted that the FP-1B discharge valve was shut, causing both fire pumps to be out to service. The valve was immediately opened.

The cause of this event was due to the incorrect assumption made by the operator that further maintenance would be performed on FP-1B. In addition, the operator failed to notify the shift supervisor that the FP-1B discharge valve was left in the shut position. To prevent further events of this type, the licensee revised and reissued Procedure OI-FP-1, "Fire Protection System-Normal Conditions," to require a shift supervisor signoff for all fire system valve alignments. The signoff will ensure that the shift supervisor will be aware of the status of fire system valves. The licensee also provided training to the appropriate individuals to make the individuals aware of the root causes of this event.

The NRC inspector reviewed the revision issued to Procedure OI-FP-1 to verify that the shift supervisor signature had been included, and reviewed the completed documentation of fire pump testing since the event occurred. No problems were noted. The NRC inspector also performed a review to verify that the event described by this LER had been discussed with operations personnel. This review was performed by discussing the event with selected operations personnel. In each case, the operators were knowledgeable of the event and the causes of

the event. Based on the reviews performed by the NRC inspector, it appeared that the licensee had taken appropriate actions to preclude recurrence of this event.

b. LER 87-022 reported defects that were discovered in the EFWST during the 1987 refueling outage. The defects identified were surface cracking, slag inclusions, and lack of fusion in welds. The licensee identified the probable causes of the defects to be the use of welding rod without preheat resulting in shrinkage, improper cleaning of copper deposits causing a lack of fusion, and poor workmanship. The licensee repaired the defects, hydrostatically tested the tank, and returned the tank to service.

   An NRC inspector performed an onsite review of licensee activities that were taken to correct the defects in the EFWST. The details of the review are provided in NRC Inspection Report 50-285/87-14. Based on this review, this LER is considered closed.

c. LER 87-028 described an event where the licensee failed to submit a special report to the NRC in accordance with the requirements of TS 2.19(7). The TS requires that a report be submitted within 30 days from the day a TS fire barrier is determined to be nonfunctional for greater than 7 days. On March 19, 1987, the fire barrier separating Fire Areas 41 and 42 was rendered inoperable. The licensee failed to submit the special report because the report was lost during the licensee's internal review process. The special report was discovered on October 8, 1987. In discussions with licensee personnel, the NRC inspector determined that the licensee intended to submit the special report to the NRC as a part of this LER; however, the licensee did not correctly complete the LER form to indicate that the LER contained information related to a special report. On December 31, 1987, the licensee issued a revision to this LER to include the proper notations.

   To ensure that all special reports are submitted to the NRC in a timely manner, the licensee revised Procedure SO-R-4, "Station Incident Reports," to establish a program for initiation of a station incident report (SIR) in each case where a special report is required to be submitted to the NRC. Initiation of a SIR will provide an internal tracking system that will ensure all special reports are issued in accordance with the time limits specified in the TS.

   The NRC inspector reviewed Procedure SO-R-4 to verify that the licensee had established a program to ensure the special reports required by the TS were issued in a timely manner. Based on the review, it appeared that the licensee had established an acceptable program. The NRC inspector reviewed a selection of other events where a special report was required to be submitted to the NRC. No problems were noted.

The NRC inspector also reviewed the repairs made to the fire barrier between Fire Areas 41 and 42 to verify that the fire barrier was returned to a functional status and that an hourly fire watch had been established. The fire barrier was repaired in accordance with instructions provided in MO 871245. No problems were noted during this review.

No violations or deviations were identified.

4. Operational Safety Verification

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, administrative procedures, and the 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
- MOs 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

The following items were identified during control room observations.

a. During tours of the control room, the NRC inspectors noted that an excessive number of plant personnel were in the control room main boundary. The control room main boundary is defined as the area encompassed by the main control board and other safety-related control panels.

On December 29, 1987, the NRC inspector noted that 8 people were in the control room main boundary, and again on December 30, 1987, the NRC inspector noted 15 people in the control room main boundary, in addition to the normal control room staff. With this number of additional personnel in the area, it caused an excessive noise level and distraction to the control room operators.

The NRC inspector discussed the situation with the onshift operators from four of the six shifts. Based on these discussions, the NRC inspector noted that the operators felt that they did not have management's support in requesting personnel to leave the control room. Operations personnel related that on a number of occasions in the past, they had requested that personnel leave the control room and the personnel departed. Operations personnel stated that shortly thereafter, management personnel visited the control room and expressed dissatisfaction with operations personnel requesting that personnel leave the control room. For this reason, operations personnel have been hesitant towards clearing the control room of unnecessary personnel.

The NRC inspector discussed the concern of excessive personnel in the control room with licensee management. Licensee management stated that a review would be performed and controls developed to ensure that unnecessary personnel are kept out of the control room main boundary.

This item will remain open pending the establishment of a program by licensee management for limiting personnel access to the control room and a review of the program by the NRC inspector (285/8733-01).

b. On December 18, 1987, the NRC inspector was in the control room at lunch time when operations personnel were attempting to contact the shift chemistry technician for assistance. The control room operators were unable to contact the technician after paging the technician eight times over the public address system. The page was eventually answered by a chemistry technician that was not assigned onshift duties.

In discussions with onshift operations personnel, the NRC inspector determined that the shift chemistry technician routinely does not answer pages during the lunch period, not only on day shift, but also on other shifts. Operations personnel also stated that the health physics technicians do not routinely answer pages during lunch periods.

The NRC inspector discussed the event described above with licensee management to stress the need to develop team work among the various groups with the plant organizations. Licensee management stated that a review would be performed to determine the reasons for technicians not answering pages. This item remains open pending a review by licensee management and a followup review by the NRC inspector of the licensee's actions (285/8733-02).

c. On December 30, 1987, the NRC inspector noted that Charging Pump B (CH-1B) was out of service. Although CH-1B did not cause the plant to be in a TS limiting condition for operation, the NRC inspector became concerned with the adequacy of Procedure AOP-6, "Emergency Fire Procedure." Procedure AOP-6 provides instructions

for the operation of equipment from the alternate shutdown panel in the event the control room must be evacuated due to a fire. Procedure AOP-6 provides instructions for maintaining the plant in a hot-shutdown condition using CH-1B. No instructions have been provided for maintaining the plant in hot shutdown if CH-1B is not available, as was the case on December 30, 1987.

The NRC inspector discussed the situation with various onshift operators. In each case, the operators were aware of the actions required for operation of one of the other two charging pumps, in the event CH-1B was inoperable. However, the operators were not aware of the details for pump operation such as which individual was responsible for operation of the pump from the local electrical supply breaker.

The NRC inspector discussed the adequacy of Procedure AOP-6 with management personnel. Management personnel stated a review would be performed to determine the adequacy of Procedure AOP-6 and then discuss the results with the NRC inspector. Licensee management did not complete the review prior to the end of this inspection period. This item remains unresolved pending the review of Procedure AOP-6 by licensee management and a discussion of the results (285/8733-03).

No violations or deviations were identified.

5. Plant Tours

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.
- The auxiliary feedwater pumps were not steam bound.

During a tour of the plant on November 30, 1987, the day after performance of the monthly surveillance test, the NRC inspector noted a 3/8-inch layer of a substance floating on the water in the cooling water surge tank sightglass of Emergency Diesel Generator (EDG) 2. The substance appeared to be lubricating oil. The NRC inspector notified the licensee of the layer in the expansion tank. The NRC inspector's concern was that the presence of oil in the water system was a precursor to the potential failure of the cooling water/lubricating oil cooler. The concern was based on an event that occurred on September 23, 1987, where EDG 2 tripped off during surveillance testing due to high temperatures in the cooling water system, and the overheating event may have damaged internal components on EDG 2. The licensee collected a sample of the water in the EDG 2 sightglass and sent it offsite for analysis. On December 4, 1987, the licensee was notified that the sample contained lubricating oil.

On December 8, 1987, the licensee contacted the EDG vendor (EMD) to obtain EMD's evaluation of the cause for the presence of oil in the sightglass. EMD stated that a small amount of oil in the sightglass was not unusual because the engine gaskets are coated with lubricating oil prior to assembly of components. The licensee performed an engine disassembly in May 1987. EMD recommended that the licensee check for the presence of water in the lubricating oil system. EMD's concern was that water may have entered the lubricating oil system because the pressure in the water system is greater than the pressure in the oil system when the EDG is in a standby status, the normal operating mode of the EDG. The presence of water in the lubricating oil would confirm that a cooling water/lubricating oil cooler leak existed. EMD recommended that the licensee inspect the engine upper deck for sludge buildup and check the lubricating oil sump for water. The licensee performed the inspections, in accordance with MO 875627, and no water was found.

On December 24, 1987, the day after performance of the monthly surveillance test on EDG 2, the NRC inspector again noted that the cooling water surge tank sightglass contained a 2-inch layer of lubricating oil. The NRC inspector notified the licensee of the presence of the oil. The licensee took a sample of the water from the sightglass and transported it offsite for analysis. The analysis was not completed prior to the end of this inspection period.

On December 31, 1987, the licensee again contacted EMD. During the discussion, EMD stated that if the engine had been overheated, seals will leak and pass a small amount of oil into the cooling water system. During operation of the EDG under load, oil pressure is greater than cooling water pressure, causing oil to leak into the water. The oil will locate in the high points of the system and will be transported to the cooling water surge tank as the engine is subsequently operated under load.

During the ongoing evaluation performed by the licensee to determine if a potential problem with EDG 2 existed, at no time did the licensee consider EDG 2 to be inoperable. The licensee stated that even though a potential problem existed with EDG 2, there was no evidence to indicate that EDG 2

could not perform its intended safety function. The NRC inspector reviewed the actions taken by the licensee and concurred that no evidence existed that would indicate EDG 2 is inoperable.

At the end of this inspection period, the licensee was continuing to evaluate the potential problem with EDG 2. The licensee planned to obtain the services of a vendor technical representative to perform an onsite observation of the operation of EDG 2 to evaluate the identified potential problem. This item remains open pending the completion of the evaluation by the licensee and a followup of licensee actions by the NRC inspector (285/8733-04).

No violations or deviations were identified.

6. Safety-Related System Walkdowns

The NRC inspectors walked down accessible portions of the following safety-related systems to verify system operability. Operability was determined by verification of selected valve and switch positions. The systems were walked down using the drawings and procedures noted.

- Engineered safeguards controls (Procedure OI-ES-1, Checklist A, Revision 18)
- High-pressure safety injection system (Procedure OI-SI-1, Checklist A, Revision 40 and Drawing 23866-210-130, Revision 43)
- Low-pressure safety injection system (Procedure OI-SI-1, Checklist B, Revision 40 and Drawing 23866-210-130, Revision 43)
- 480-volt electrical distribution system (Procedure OI-EE-2, Checklist B, Revision 13 and USAR Figure 8.1-1, Revision 32)

During walkdown of the 480-volt electrical distribution system, several discrepancies were noted and are detailed in paragraph 2.b of this inspection report.

During walkdown of the other three systems listed above, the NRC inspectors noted no discrepancies between the drawings, procedures, and plant as-built conditions for the selected areas checked.

No violations or deviations were identified.

7. Monthly Maintenance Observations

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 inspectors reviewed and/or observed the following maintenance activities:

- Repair of leakage for Valves PCV-742A and PCV-742B at containment Penetration M-87 (MO 877042)
- Repair of pressurizer level chart recorder (MO 875796)
- Repair of steam generator level transmitter (MO 871556)
- Repair of a fire detector (MO 874448)
- Flushing of EDG 2 cooling water surge tank (MO 875886)
- Checking of the EDG 2 lubricating oil system for water (MO 875627)

No violations or deviations were identified.

8. Monthly Surveillance Observations

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.

- Leak rate testing of containment isolation Valves PCV-742A and PCV-742B (ST-CONT-3)

- Monthly testing of EDG 1 (ST-ESF-6)

- Monthly calibration of pressurizer level (ST-PL-1)

- Auxiliary feedwater pump and remotely operated valve check (ST-FW-1)

- Auxiliary feedwater valve inservice testing (ST-ISI-FW-1)

- Ventilating air valves inservice testing (ST-ISI-VA-1)

- Stroke testing of safety-related valves not in the inservice inspection program (SP-STROKE-1)

- Monthly test of the station batteries (ST-DC-1)

- Monthly test of EDG 2 (ST-ESF-6)

On November 30, 1987, the licensee performed Procedure ST-CONT-3 to determine the leakage through containment purge Valves PCV-742A and PCV-742B. Both of these valves are containment isolation valves. The test was performed as a routinely scheduled test in accordance with the TS. When the test was performed, the licensee determined that the leakage rate was 260,000 standard cubic centimeters per minute (sccm). The acceptance criteria for leakage rate is 18,000 sccm. Based on the results of the testing, the licensee entered the limiting condition for operation of TS 3.5(4)c. The TS requires that a plant shutdown be initiated if repairs are not completed within 48 hours. The licensee notified the NRC resident inspector and NRC Operations Center of the problem within 4 hours as required by 10 CFR Part 50.72. The licensee initiated repairs in accordance with MO 877042. The valve operator for Valve PCV-742B was adjusted to ensure that the valve disk was firmly seated against the valve seat. The leak rate test was reperformed and the leakage was determined to be 0 sccm. The licensee completed the valve repairs within the 48-hour

time limit specified in TS 3.5(4)c. On December 1, 1987, the NRC inspector observed the test and verified that the data obtained was accurate. On December 30, 1987, the licensee submitted LER 87-038 to provide details of this event and to provide a corrective action program to correct this problem. The NRC inspectors will review the corrective action program during close out of LER 87-038.

No violations or deviations were identified.

9. Security Observations

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 maintained when security equipment failure or impairment required compensatory measures to be employed.
- 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.

10. Radiological Protection Observations

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.

11. In-office Review of Periodic and Special Reports

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

- Reports 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 report should be classified as an abnormal occurrence.

The NRC inspectors reviewed the following:

- Enforcement discretion for the containment isolation purge valves, dated December 1, 1987

- Followup and withdrawal of enforcement discretion request of December 1, 1987, dated December 2, 1987

- Monthly operations report for November 1987, undated

- November monthly operating report, dated December 14, 1987

During review of reports, NRC personnel identified 10 CFR Part 21 reports submitted by suppliers or vendors that appeared to be applicable to the licensee's facility. The NRC resident inspector provided copies of these reports to the plant licensing engineer for review of applicability by the licensee. The reports provided are listed below:

- A letter dated October 23, 1987, from the Public Service Electric and Gas Company related to defects in the containment hydrogen analyzers.

- A letter dated October 19, 1987, from the Philadelphia Electric Company related to nondestructive examination services provided by the Eastern Testing and Inspection Company.

- A letter dated October 16, 1987, from the Westinghouse Electric Corporation related to defects in Type W-2 cell switches.

- A letter dated September 29, 1987, from the Morrison-Knudsen Company related to a potential problem with saturable core transformers installed in emergency diesel generators.

- A letter dated November 12, 1987, from General Electric related to insufficient latch engagement in HFA relays.

- A letter dated October 2, 1987, from Combustion Engineering related to fasteners installed in motor-operated valves supplied by Borg-Warner.

No violations or deviations were identified.

12. Followup on an Onsite Event

On July 6, 1987, the licensee experienced an event where water was introduced into the instrument air system. On September 23, 1987, EDG 2 was automatically shut down during a surveillance test due to the exhaust damper failing to open causing high temperatures in the cooling water system. The details of the event are provided in NRC Inspection Report 50-285/87-27.

In followup to this event, the licensee identified and removed all identified instrument air/water interfaces. In subsequent followup during December 1987, the licensee identified additional instrument air/water interfaces that provided the potential for water to enter the instrument air system. The interfaces consisted of air-operated, pinch-type, and diaphragm-operated valves where failure of a rubber valve component could allow water to enter the air system.

At the end of this inspection period, the licensee was in the process of determining the possibility of water entering the air system through the failure of valve internals and establishing a corrective action program, if required. This item remains open pending the completion of the licensee's evaluation and a review of the licensee's conclusions by the NRC inspectors (285/8733-05).

No violations or deviations were identified.

13. Cold Weather Preparations

The NRC inspectors toured various plant areas and reviewed documentation to verify that the licensee had taken measures to ensure that systems affected by extreme cold weather were properly protected. The items observed and/or reviewed by the NRC inspectors are listed below.

- The freezing point of the cooling systems for the plant emergency, security, and technical support center (TSC) diesels had been tested and actions taken, if appropriate.
- The steam supply to the condensate storage tank had been initiated.
- Fire water system piping had been recovered with earth following modifications to the system.
- The stop log used to divert the plant cooling water outflow from downstream to upstream of the intake structure was installed. The flow is diverted to prevent ice floes from clogging the intake structure grids.

During review of the above items, the NRC inspector noted that the licensee had not determined the freezing point of the cooling water system for the security and TSC diesels. The other items were found to be satisfactory. A review by the licensee revealed that documentation had not been issued to require testing of the cooling system freezing point. The licensee stated that the freezing point for both diesels would be checked and documentation would be generated to perform a routinely scheduled check in the future. This item remains unresolved pending the completion of the freeze point checks, issuance of a procedure for checking the freeze point in the future, and a review of these licensee actions by the NRC inspector (285/8733-06).

No violations or deviation were identified.

14. Review of the Licensee's Program for Natural Circulation Cooldown

The NRC inspector performed a review to verify that the licensee's program for natural circulation cooldown complied with the requirements stated in Generic Letter (GL) 81-21, "Natural Circulation Cooldown," issued on May 5, 1981, the licensee's response to GL 81-21, dated November 13, 1981, and the safety evaluation report (SER) issued by the NRC on October 28, 1983. The NRC inspector reviewed the following items.

- Commitments stated in the licensee's response to GL 81-21 were adequately incorporated into Procedures OI-RC-11, "Reactor Coolant System Natural Circulation Cooldown", Section HR-2 of EOP-20, "RCS and Core Heat Removal", and EOP-02, "Electrical Emergency."

- Classroom and simulator training was provided to all licensed operators and shift technical assistants using the procedure listed above.

The results of the reviews performed by the NRC inspector are discussed below:

- It appeared, based on the review of Procedures OI-RC-11, EOP-20, and EOP-02, that the licensee had adequately implemented the technical requirements stated in the SER. However, the NRC inspector did note eight examples of where the presentation of the information in the procedures was vague and confusing. It appeared that the information would not have prevented operations personnel from establishing and maintaining natural circulation cooldown. The eight examples were provided to the licensee. The licensee stated that a review of the comments would be performed and revisions issued to the procedures, as appropriate. This item remains open pending a review by the NRC inspector of the procedure revisions made by the licensee (285/8733-07).

- Documentation of classroom lectures and simulator worksheets was reviewed and discussions with licensed operators were performed to verify that training had been provided for natural circulation cooldown. Based on these reviews, it appeared that training had been given the licensed operators and shift technical advisors. During discussions with licensed operators, specific questions were asked regarding the actions necessary to establish and maintain natural circulation cooldown. In each case, the operators demonstrated an indepth understanding of the natural circulation cooldown process.

No violations or deviations were identified.

15. Unresolved Items

An unresolved item is a matter about which more information is required in order to determine whether it is acceptable, a violation, or a deviation. Two unresolved items are discussed in this inspection report.

Item	Paragraph	Subject
285/8733-03	4.c	Review of the adequacy of AOP-6
285/8733-06	13	Determination of the cooling water system freezing points for the security and TSC diesels

16. Exit Interview

The NRC inspector met with you 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.