ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-285/95-12

Operating License: DPR-40

Licensee: Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 399, Hwy. 75 - North of Fort Calhoun
Fort Calhoun, Nebraska

Facility Name: Fort Calhoun Station

Inspection At: Blair, Nebraska

Inspection Conducted: July 2 through August 12, 1995

Inspectors: W. Walker, Senior Resident Inspector
V. Gaddy, Resident Inspector
R. Mullikin, Senior Resident Inspector

Approved: L A Yandell
L. A. Yandell, Chief (Acting), Project Branch A

August 31 '95
Date

Inspection Summary

Areas Inspected: Routine, unannounced inspection of operational safety verification, plant support activities, maintenance and surveillance observations, and onsite engineering.

Results:

Plant Operations

- The licensee's implementation and training on a new procedure for controlling the storage of transient equipment and materials was confusing (Section 2.2).

- Control room operators' increased monitoring and awareness of operating contingencies based on continual trending of Reactor Coolant Pump RC-3D oil levels was good (Section 2.3).

- The licensee took prompt action on an inspector identified item which could have caused a plant trip. However, the discovery showed an apparent failure to replace all removed components during a previous maintenance activity (Section 2.4).

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- Since the identification of equipment and design deficiencies in early 1995, operations personnel have not proactively sought assistance from engineering to resolve those deficiencies (Section 2.10).

Maintenance

- The inspector identified a weakness in the performance of 125V dc relay maintenance regarding removal of deficiency tags following completion of work activities (Section 2.5).

- The licensee was not effective in addressing mispositioned valves during maintenance activities and ensuring that communications between operations, maintenance, and planning were adequate (Section 2.6).

- Maintenance technicians exhibited a good questioning attitude in stopping work to clarify work instructions during replacement of the control switch for Condenser Vacuum Pump FW-8C (Section 4.1).

- The inspector identified that a preventive maintenance order was incorrectly coded with regard to plant condition and work release authority (Section 4.2).

- A violation was identified when personnel performing a modification on control room air conditioner Unit VA-46B did not implement foreign material exclusion controls (Section 4.3).

- Surveillance activities were conducted in a competent manner (Section 5).

Engineering

- Design engineers experienced some difficulty in performing new calculations for diesel generator temperature limits due to inconsistencies in design information available (Section 6.2).

- The operability evaluation for the steam driven auxiliary feedwater pump was narrowly focused. Documentation of control switch problems and abnormal sounds during startup was not done (Section 6.3).

Plant Support

- The inspectors noted poor housekeeping inside certain cable trays (Section 2.8).

- The licensee's evaluation of Fire Barrier Penetration 69-F-4 was good. However, the lack of guidance to preclude storage of combustibles on the penetration was considered a weakness (Section 3.3).

Summary of Inspection Findings:

- Violation 285/9512-01 was opened (Section 4.3).
- Inspection Followup Item 285/9512-02 was opened (Section 2.10).
- Inspection Followup Item 285/9512-03 was opened (Section 6.3).

Attachment:

- Persons Contacted and Exit Meeting

DETAILS

1 PLANT STATUS

The plant operated at 100 percent power throughout this inspection period.

2 OPERATIONAL SAFETY VERIFICATION (71707)

2.1 Routine Control Room Observations

The inspectors observed operational activities throughout this inspection period to verify that adequate control room staffing and control room professionalism were maintained. Shift turnover meetings were conducted in a manner that provided for proper communication of plant status from one shift to the other. Discussions with operators indicated that they were aware of plant status, equipment status, and reasons for lit annunciators. Control room indications of various valve and breaker lineups were verified for current plant status.

2.2 Plant Tours

The inspectors routinely toured various areas of the plant to assess the safety conditions and adequacy of plant equipment. Personnel were observed obeying rules for escorts, visitors, entry, and exits into and out of vital areas.

The inspectors verified that various valve and switch positions were correct for the current plant conditions. Piping and instrumentation drawings and operating instructions posted in vital areas were inspected and found to be current.

On July 31, 1995, plant management initiated a new procedure, Standing Order SO-G-107, "Storage of Transient Equipment and Material to Prevent Seismic Interactions." The inspectors discussed the new procedure with the licensee to obtain an understanding of its implementation. Areas have been designated throughout the plant with red and green striped boundaries indicating safe zones for storage of transient equipment and materials.

The inspectors noted that licensee line and supervisory personnel expressed concern as to how the procedure would be implemented. The inspectors also noted that, although training on the procedure had been provided, confusion regarding its implementation was still evident and that several incident reports had been generated by the licensee regarding implementation deficiencies.

The licensee indicated to the inspectors that they would examine the effectiveness of the training given to plant personnel. The licensee also indicated that, if necessary, the procedure would undergo additional review and changes to resolve any outstanding concerns.

2.3 Reactor Coolant Pump Motor RC-3D Upper Oil Reservoir Leak

On June 26, 1995, the inspectors discussed with the licensee the operating guidance provided to address the oil leakage on Reactor Coolant Pump RC-3D that has been observed since startup from the Memorial Day outage.

The inspectors expressed concern regarding the oil leakage due to the possibility of an unexpected plant trip caused by the loss of the reactor coolant pump. The leakage was identified as coming from the upper oil reservoir. During the first several days of operation, the oil level was observed to drop rapidly from the full (82 percent) level to approximately 76 percent where it appeared to stabilize and then drop slowly. The licensee has determined that the oil level can drop to 73 percent in the upper oil reservoir before oil must be added. The licensee has issued instructions to add only 3 or 4 gallons of oil at a time to bring the level up to 76 percent. This has helped reduce the rate of oil leakage and the fire loading inside containment caused by the leakage. As an added precaution, the licensee has lowered the alarm setpoint on the upper guide bearing from 194°F to 160°F to provide early indication if the bearing temperature were to increase.

The inspectors questioned the licensee regarding the potential for the increased fire loading inside containment due to the approximately 10 gallons of lube oil lost from Pump RC-3D. The licensee responded that the additional combustible material inside containment was within the bounds of the containment analysis which took into account an additional combustible loading of 395 gallons of oil. Maintenance personnel have observed that the oil lost to date has not soaked into the insulation around the pump casing or piping, which could expose it to high temperatures in excess of the oil's flashpoint of 400°F.

The inspectors concluded that the licensee's increased monitoring and operating contingencies based on continual trending of Pump RC-3D oil levels were appropriate.

2.4 Missing Hanger Clip on Instrument Air Line

On July 26, 1995, the inspector observed in Room 81 (Emergency Feedwater Tank Room) that a section of the 1-inch instrument air riser was vibrating. The inspector noted that a hanger clip was missing and that the piping could be damaged from vibration, leading to a rupture. Although this instrument air line is not safety related, such a rupture would cause the main steam isolation valve to fail closed, resulting in a plant trip. The inspector contacted the shift supervisor and was informed that it would be inspected. Subsequently, the shift supervisor confirmed that the piping was vibrating and that a hanger clip was missing. Maintenance Work Order (MWO) 952545 was initiated to replace the clip and inspect the piping.

On August 3 the clip was replaced and the piping inspected. The licensee discovered that the line had been gouged while vibrating against the main steam isolation valve operator. Although the gouge was not through the pipe

wall, the licensee did discover a small air leak upstream on a tee connection. The system engineer was present during this maintenance activity and Incident Report 950525 was written to document the discovery. The licensee determined that neither the air leak or the gouged piping made the system inoperable. MWO 952661 was written to replace this line, which can only be done during an outage.

The inspector discussed the reason for the missing hanger clip with the licensee. The licensee stated that some work had been performed on a portion of the line during the previous outage, but was unable to determine when the hanger clip had been removed. The inspector considered the licensee's followup actions to be acceptable.

2.5 Deficiency Tag Removal

On July 7, 1995, the inspectors were reviewing deficiency tags on safety related equipment in the east switchgear room and identified a deficiency tag on the manual transfer switch for the 125V dc control power. This is a relay used for surveillance testing only. This specific relay (1B 3A-4A-MTS) was sticking open and required mechanical agitation to close. The inspectors observed that a deficiency tag had been hung on March 21, 1995, and discussed the relay problem with the system engineer. The system engineer determined that the relay had actually been worked on March 30 and that the deficiency tag was no longer valid.

The inspectors reviewed MWO 950923, which contains a section called "followup activities," and noted that the item for removing the deficiency tag following maintenance was circled as not applicable. The system engineer informed the inspectors that the deficiency tag should have been removed.

The inspectors concluded that this was a weakness in the performance of maintenance in that there was a specific step in the MWO and instructions in Standing Order SO-M-100, "Conduct of Maintenance," for verifying removal of deficiency tags. However, in reviewing the maintenance procedure for work control the inspectors determined that deficiency tags were intended for use as an aid to operations and maintenance personnel and noted that the licensee counseled maintenance personnel on the importance of removing deficiency tags following the completion of work. The inspectors considered the licensee's actions appropriate.

2.6 Waste Holdup Tank Recirculation Sample Valve Tagging

On June 23, 1995, inspectors reviewed Incident Report 9504 concerning the loss of control of waste holdup tank Recirculation Sample Valve WD-450. The valve was worked on by maintenance and repaired, however, the valve itself was not tagged per the instruction of the senior reactor operator (SRO) in the outage control center. The decision was made by the SRO to tag out only valves within the system to isolate Valve WD-450. Since Valve WD-450 was going to be removed for maintenance, a decision was made not to tag it.

After the valve repairs were completed, an equipment operator cleared the tagout from the system. Since Valve WD-450 had not been tagged originally, there was no verification of the position of Valve WD-450. The equipment operator then restored the system and reported to the SRO that the system had been restored. At that point in time, the SRO realized that Valve WD-450 had not been verified to be shut. When directed to check the valve, the auxiliary building operator reported that water was running out on the floor because Valve WD-450 had been left in the open position versus its normally closed position.

Based on a review of this event and a similar incident which occurred recently (Incident Report 950116), the inspectors concluded that the licensee was not effective in addressing mispositioned valves during maintenance activities and ensuring adequate communications between operations, maintenance, and planning prior to actual performance of maintenance work.

The inspectors reviewed the licensee's evaluation of this incident and confirmed that no procedural violation occurred. The inspectors agreed with the licensee's conclusion that a weakness existed in Equipment Tagging Procedure SO-G-20A. Based on this conclusion, the licensee had initiated a revision to Procedure SO-G-20A to add a supplemental sheet which would list all valves that maintenance had worked on. This would ensure that, when a system is restored, each valve would be verified in its normal configuration whether it had been tagged or not. The inspectors considered the licensee's actions appropriate.

2.7 Batteries

On July 24, 1995, during a routine tour of Battery Room 2, the inspector observed an object floating in Battery Cell 22. Electrical maintenance personnel were also present in the battery room performing a monthly battery surveillance. The inspector immediately informed control room operators and the system engineer of the observation. The system engineer informed the inspector that the object was an electrolyte withdrawal tube. The system engineer stated that this was a historical problem that had been previously documented in Incident Report 940078 dated February 2, 1994, and closed in June 1994. The purpose of the electrolyte withdrawal tube is to ensure that the electrolyte sample for specific gravity determination comes from a specific level. The system engineer stated that, since each cell had two withdrawal tubes, the specific gravity measurements could still be made. In response to inspector questions, the system engineer stated that, if both withdrawal tubes were to become damaged, the battery would have to be replaced.

The inspector determined that battery operability was unaffected since the withdrawal tube was composed of a nonconductive material that could not short out the battery plates and, therefore, battery life and capacity had not been reduced.

The licensee did not have a definitive answer as to why the electrolyte withdrawal tubes were breaking. The vendor suspected that the tubes were most likely being damaged as a result of a tube being inserted into the electrolyte to measure the electrolyte temperature.

The licensee planned to continue to monitor the condition of the electrolyte withdrawal tubes.

2.8 Cable Spread Room Tour

During a tour of the cable spread room, the inspector observed the condition of numerous cable trays. The inspector noted that housekeeping inside certain cable trays was poor. Specifically, the inspector noted dust, wads of loose tape, and loose nuts laying in a cable tray. The inspector also noted sections of a newspaper and a styrofoam coffee cup lying in the area. These observations were brought to the attention of the licensee and immediately corrected. No other anomalies were noted.

2.9 Plant Material Condition

During routine tours of Rooms 21 and 22 (west and east safety injection pump room, respectively) the inspector noted that the pumps located in these rooms had been roped off and posted as either high radiation areas or contaminated areas. The inspector learned that the pumps were roped off due to repeated pump packing leaks resulting in local contamination. The licensee stated that cleaning the area would result in a high radiation dose to decontamination personnel. The inspector inquired if the roping off of the pumps hampered system engineering or operations personnel from performing their duties. The inspector was informed that the required system walkdowns were still being conducted and that the roped off areas did not hamper system engineering and operations personnel from performing their duties.

2.10 Control Room Deficiencies and Operator Work Arounds

The licensee's policy for managing control room deficiencies and operator work arounds was outlined in Operation Department Policy and Directive OPD-4-17, dated January 9, 1995. As of August 4, the licensee had identified 44 items that were classified as control room deficiencies. Control room deficiencies were written to address equipment that was operated from the control room or that read out in the control room. These deficiencies were compiled in a status report that was periodically published by the maintenance department with input from operations. The inspectors learned that the licensee had a goal of 45 control room deficiencies. When questioned by the inspector, the licensee stated that there was no technical basis for the goal, but that the number had been proposed originally by the nuclear planning group and never changed. The licensee indicated that all the deficiencies had been evaluated for significance and prioritized accordingly.

The licensee also had other lists of deficiencies that were published solely by operations. These lists contained the equipment and design deficiencies

that had been categorized as operator work arounds. An operator work around was defined as a deficiency that required some alternate action by an operator (licensed or nonlicensed) to compensate for the condition. As of August 4, six equipment deficiencies and 24 design deficiencies were categorized as operator work arounds.

The inspectors noted that some of the design deficiencies were several years old or did not have expected resolution dates. In response, the licensee provided the inspectors with a historical perspective of their operator work arounds. The licensee stated that most of the equipment and design deficiencies had been originally identified by design engineering. Once the deficiencies were identified, design engineering approached operations to determine the best compensatory measure that would allow operators to work around the deficiency. Operations responded by making procedural changes to emergency/abnormal operating procedures and other procedures to work around the deficiencies. Operations considered these procedural changes to be the permanent fix for the deficiencies. Since certain functions during abnormal or emergency situations had to be completed within certain time limits, the inspectors asked if the compensatory actions affected these time requirements. The licensee indicated that all time requirements had been fully evaluated and that they would not be affected by the additional requirements.

A generic recommendation issued to the industry in July 1994 suggested a high priority be placed on equipment problems that required operator compensatory actions. In early 1995, in response to the industry generic recommendation, operations collectively identified all equipment and design deficiencies that were considered operator work arounds and provided the list to design engineering for permanent resolution. In reviewing the list, the inspectors noted that operations had not requested assistance from design engineering to permanently resolve certain work arounds. Operations stated that, since the list was developed in early 1995, they had not had an opportunity to request assistance from engineering on all items. The licensee stated that they were planning to request engineering assistance on all work arounds.

The inspectors concluded that, prior to the issuance of the generic recommendation, both operations and engineering personnel seemed content to operate with numerous compensatory measures rather than aggressively seeking permanent resolution to the equipment and design deficiencies. The inspectors also determined that, since operations had identified all equipment and design deficiencies in early 1995, they had not proactively sought assistance from engineering to resolve the deficiencies.

The inspectors will continue to review and evaluate the significance and priority that the licensee had assigned to each deficiency and will continue to monitor the resolution of the deficiencies. This issue will be tracked as an inspection followup item (285/9512-02).

3 PLANT SUPPORT ACTIVITIES (71750)

3.1 Radiological Protection Program Observations

During this inspection period, the inspectors verified that selected activities of the licensee's radiological protection program were properly implemented. Health physics personnel were observed routinely touring the radiologically controlled areas. Contaminated areas and high radiation areas were properly posted, and restricted high radiation areas were found to be locked, as required. Area surveys, posted outside each room in the auxiliary building, were found to be current.

3.2 Security Program Observations

The inspectors observed various aspects of the licensee's security program. Security personnel were found to perform their duties in a professional manner. Vehicles were properly controlled or escorted within the protected area. Designated vehicles parked and unattended within the protected area were found to be locked and the keys removed. The inspectors routinely toured the protected area perimeter and found it maintained at an excellent level. Proper compensatory measures were observed when a security barrier was inoperable.

3.3 Fire Barrier Penetration

On August 2, 1995, during a tour of Room 69 (Ventilation Room Auxiliary Building), the inspector noted that the metal cap covering Valve CH-247 (Purification Ion Exchanger CH-8B Resin Addition Isolation Valve) was not installed. The inspector also noted that the penetration was marked as Fire Penetration 69-F-4. The inspector determined that the uncapped penetration compromised the fire barrier and informed the licensee of its condition.

On August 3, the licensee provided the inspector with a copy of Engineering Analysis EA-FC-91-110, dated December 17, 1991. The analysis concluded that the penetrations did not have to be capped because the diameter (approximately 2 inches) of the penetration would limit flame propagation both into and out of Room 69. The analysis stated that, in the worst case, heat and smoke would be vented through the penetration and that this would represent a hazard only if combustibles were sitting on top of the penetrations.

The inspector questioned the licensee as to whether measures were in place to prevent combustible material from being placed on the penetration. The licensee stated that no guidance existed prohibiting the storage of combustibles on or near the penetration. Since the licensee's evaluation assumed no combustible material would be stored on top of the penetrations, and since no guidance existed to preclude the storage of combustibles on the penetration, the inspector considered this a weakness in the licensee's program.

4 MAINTENANCE OBSERVATIONS (62703)

The maintenance activities listed below were observed and documentation reviewed to verify that the activities were conducted in a manner which resulted in reliable safe plant operation.

4.1 Replacement of Control Switch

The inspectors observed the performance of MWO 95-2468, which was issued to troubleshoot and repair the local control switch for Condenser Vacuum Pump FW-8C. The problem with the switch was discovered when operations was performing their routine rotation of equipment and was unable to start the vacuum pump from the control room. An operator at the local control switch was able to agitate the switch and cause the pump to start. Electrical maintenance inspected the switch and determined that two contacts were not making up and, therefore, the switch was defective and would need to be replaced.

During the maintenance activity, the inspectors observed that the breaker cabinet in which the switch was located was clean, with no type of foreign material inside. Electrical technicians performed the maintenance in accordance with procedure requirements.

Inspectors noted that the procedure used for performance of the maintenance had been reviewed and signed by the appropriate personnel. At one point in the procedure, when the electrical technicians were required to verify the labeling of the wires, there was a discrepancy identified in the instructions provided by the maintenance planner compared to what was found out in the field. The electrical technicians stopped work and called their lead supervisor to review the work package. The maintenance planner and the system engineer were contacted to ensure that all the wires going to the replacement switch were properly labelled. The electrical technicians performed the necessary labeling of wires and were then able to verify the landing of the leads for the new switch.

The inspectors concluded that the electrical technicians demonstrated a good questioning attitude in stopping work and ensuring that they had a proper understanding of the guidance given in the work package before proceeding. The inspectors questioned the maintenance planner on why the instructions in the work package, considering the labeling problems, were not previously walked down. They were informed that this was an emergent work effort which did not allow sufficient planning time to perform an extensive walkdown.

The inspectors concluded that the Condenser Vacuum Pump FW-8C maintenance activities were performed in an appropriate manner once the wire labeling issue was resolved.

4.2 Offsite Power Low Signal Timing Relay Calibration

On July 11, 1995, the inspector observed maintenance personnel perform portions of the calibration of the Offsite Power Low Signal C timing relay.

The activity was conducted in accordance with Preventive Maintenance Order (PMO) WP009806. The calibration was performed according to Calibration Procedure SP-CP-08-OPLS-TD, "Calibration of Timing Relays 27-T1/OPLS-A,B,C, and D."

During a review of the test documentation, the inspector noted that the preventive work order releasing the work had not been signed by the shift supervisor. The inspector was told that, since the work was classified as Plant Condition "0" it could be performed without prior shift supervisor permission. The inspector reviewed Calibration Procedure SP-CP-08-OPLS-TD and noted that it required shift supervisor approval prior to being performed and that this approval had been obtained.

The inspector questioned the licensee regarding the differences in the calibration documentation. The licensee said that the PMO was incorrect and that the calibration should have been performed as Plant Condition "1" work, requiring shift supervisor approval.

The inspector noted that in this instance the safety-related calibration was correctly performed. However, since this PMO was incorrectly coded, the inspector asked if other PMOs were also incorrectly coded, possibly allowing safety significant maintenance to be performed without shift supervisor approval.

The licensee initiated Incident Report 950494 to document the error on the preventive work order. The licensee conducted additional investigations and determined that no other PMOs had been incorrectly coded. The licensee concluded that this was an isolated incident due to an administrative error. The inspector agreed with the conclusion. The inspector also asked the licensee what work could be performed in Plant Condition "0." The licensee indicated that the intent of Plant Condition "0" was to allow the performance of minor, nonsafety-significant maintenance. However, the licensee did not have formal, proceduralized criteria that specified what work could be performed in each plant condition.

4.3 Control Room Air Conditioning Modifications

On July 18, 1995, the inspector observed maintenance technicians perform a modification to Control Room Air Conditioner VA-46B. The work was performed in accordance with Construction Work Order 95-175 by contract personnel. When the inspector arrived at the work site, the maintenance technicians had gone on break. The inspector noted that portions of the air conditioning system had been removed to allow installation of the new modification. A tubing assembly that was to be installed as part of the modification was covered with metal shavings.

The inspector reviewed the work instructions which indicated that, during periods of inactivity, all open piping systems were to be covered for foreign material exclusion purposes. When the maintenance personnel returned approximately 30 minutes later, they acknowledged the condition of the tubing

assembly and cleaned it. However, they failed to cover the open air conditioning system paths at that time. After the inspector expressed additional concern, all open air conditioning system paths were covered or taped.

Regulatory Guide 1.33, Appendix A, Section 9.a, states, in part, that maintenance that can affect the performance of safety-related equipment shall be performed in accordance with written procedures or documented instructions appropriate to the circumstances.

Standing Order SO-M-103, "System Cleanliness," Revision 2, Section 7.2.2, states, in part, that system openings shall be covered when work is not actively in progress in the vicinity of the opening.

Construction Work Order 95-175, Step 2.7, states, in part, that all open piping systems are to be covered during periods of inactivity to preclude the introduction of foreign materials into the system.

Contrary to the above, maintenance personnel did not cover the open piping of a control room air conditioner during a period of inactivity. The failure to cover the open piping system during the period of inactivity is a violation of TS 5.8.1 (285/9512-01).

The inspector informed the licensee of the observations. In response, the tubing assembly and the air conditioning unit were given additional quality control inspections to remove any contaminants prior to final modification installation. The contractors involved with the maintenance activity were subsequently counseled by their management. The individuals were given additional training on Standing Order SO-M-103, "System Cleanliness."

The inspector concluded that, with the exception of the anomalies noted above, the modifications were performed in an acceptable manner.

5 SURVEILLANCE OBSERVATIONS (61726)

The inspectors observed the surveillance testing listed below to verify that the activities were performed in accordance with the licensee's approved programs and the Technical Specifications.

5.1 Surveillance Observation

The following surveillance activity was observed:

- Diesel Generator Monthly Surveillance Run

The inspectors observed operations and maintenance personnel perform the monthly surveillance run on Diesel Generator 1. The run was conducted using

Attachment 6 of Surveillance Procedure OP-ST-DG-0001, "Diesel Generator 1 Check." The inspectors' observations were made both at the diesel generator and in the control room.

The inspector attended the prejob brief. The brief was attended by all personnel involved in the surveillance and was thorough and covered the testing objectives and precautions. Questions posed by maintenance were satisfactorily answered by operations prior to testing. The system engineer was also present during the brief. The inspectors also verified that effective communication was established between the control room and local test personnel.

Operations personnel conducted the surveillance test in a competent manner. No operational deficiencies were noted during the surveillance.

6 ONSITE ENGINEERING (37551)

6.1 Evaluation of Corroded Conduit Seals

On July 24, 1995, the inspectors observed the licensee's inspection of the conduit seals in the screen house manhole outside of the intake structure. This conduit contains electrical cable for the intake structure equipment.

In 1992, during seismic walkdowns conducted by the licensee, a determination was made that the conduit seals were in satisfactory condition. However, Engineering Change Notice 94-398 was initiated to add additional water sealing material to some of the conduit water seals in the screenhouse manhole as a precautionary measure.

In preparing to add additional sealing material, the licensee determined that the Crouse Hind seal housings were in worse condition than expected and that the application of additional sealing material might not be sufficient to prevent flooding of the intake structure. However, it appeared to the licensee that the seals were capable of slowing the flow of water into the intake structure to a manageable amount during a flooding event.

The system engineer initiated Engineering Assistance Request 95-081 to reevaluate the screenhouse manhole conduit seals to ensure no operability concerns existed due to the extent of corrosion observed. In addition, the system engineer initiated Incident Report 950501 to document the corroded seals.

The inspectors noted that the electrical maintenance personnel were making direct observations of the conduit to provide the most complete, accurate information to design engineering for evaluation. Also, good safety practices were noted in that a confined space permit was at the job site and the manhole was properly barricaded to prevent a fall hazard.

6.2 Diesel Generator Temperature Limits

On July 17, 1995, the inspectors observed the licensee conduct tests to increase the limiting ambient temperature at which the diesel generators are capable of delivering power sufficient to meet demands predicted for accident conditions.

To perform this test the licensee needed ambient air conditions at 95°F or higher for a sustained period of time. The design engineers had previously established that at 95°F or higher the diesels would be at maximum capacity for the engine cooling. These conditions occurred the week of July 17 and the tests were performed.

Based on the test results, it was established that Diesel Generator 1 can be operated up to 110°F ambient temperature versus a previous ambient temperature of 104°F. Diesel Generator 2 can be operated up to 115°F ambient temperature versus a previous ambient temperature of 110°F.

The inspectors observed that the design engineers appeared to have some difficulty in performing the new calculations due to inconsistencies in information provided in the Updated Safety Analysis Report, Technical Specifications, and Technical Data Book concerning diesel generator capacities and operating temperatures.

It also appeared that the licensee should have been more prepared to perform the calculations since the test had been pending for 3 years due to inappropriate weather conditions for performance of the test. Further review of this issue will be performed by the Engineering and Technical Support inspection team and documented in Inspection Report 95-011.

6.3 Auxiliary Feedwater Pump (AFW)

On July 28, 1995, the inspectors discussed the operability of Auxiliary Feedwater Pump FW-10. During the monthly surveillance test, operators stationed locally at the pump heard a pinging noise, something not totally unexpected since it had occurred before. Also, the turbine started without the designed 5-second time delay prior to opening of the steam-inlet valves to allow the direct current (dc) lube oil pump to supply hydraulic oil pressure for controlling the throttle valve. The pump stabilized at expected flow and pressure and the pump operated for 30 minutes before being manually shut down. Because the pump did not start as designed, the licensee initiated an operability evaluation.

When the operators completed the test and closed the steam-inlet valves by going to the reset position, the turbine again started due to the steam-inlet valves unexpectedly starting to cycle open. The operators immediately put the control switch to close and the pump again stopped. The operators repeated the above sequence twice more, with the pump starting each time the switch was placed in reset. At this point, Pump FW-10 was declared inoperable.

The inspectors reviewed the operability evaluation for Pump FW-10 and questioned the licensee concerning the reliability of the control switch and why no evaluation of the control switch problems was contained in the operability evaluation. The inspectors discussed with the licensee whether control circuitry ran through this switch for the auto start function of Pump FW-10. The licensee responded that, due to the extensive troubleshooting performed on the switch, they were confident the pump would perform its auto start function. The inspectors reviewed MWO 952570, which was used to trouble shoot the control circuitry, and noted the MWO had been voided due to the licensee's determination that the problems with the pump were mechanical and troubleshooting of the electrical circuit was not required. The inspectors questioned the licensee as to whether an incident report had been written to document the switch problem. Following the discussion with the inspector, the licensee initiated Incident Report 950516, and Maintenance Work Request 9502595 was written to replace the control switch.

The inspectors determined that the operability evaluation was narrowly focused due to the lack of information concerning reliability of the control switch. Also the inspectors considered it a weakness in the licensee's corrective action program that the control switch problems and pinging sound observed on starting Pump FW-10 had not been documented previously in an incident report, when it had been observed on prior occasions by the operators.

As mentioned above, the operability evaluation only addressed the concern regarding the turbine start without a delay versus the as-designed start, which allows for a 5 second time delay prior to opening of the steam-inlet valves. The licensee determined that the starting of the pump without a delay was due to the throttle valve not seating completely following a turbine run, allowing 25 psi pressure to remain in the steam chest, which then caused the dc driven pump not to start. The inspectors questioned the licensee concerning the effect of this condition, considering the pump was designed to have the dc lube oil pump start initially. The licensee informed the inspectors that the turbine vendor had been contacted and had verified that a pump start without the initiation of the dc lube oil pump would be expected if the turbine had been recently run and that this should not be detrimental to the pump.

The licensee suspected that the pinging may have been caused by Valve YCV-1045 (AFW steam stop valve) leaking by, allowing condensation into the turbine. To address this, the licensee has implemented an operational work around with shiftly blowdowns of the turbine steam chest by operating MS-364 (Steam Chest Drain Valve). To date, no measurable condensation had been removed from the steam chest. The licensee is continuing to evaluate the long-term solution for the concerns identified in the incident report. The inspectors will continue to monitor the licensee's activities and the implementation of the long-term corrective actions. This issue will be tracked as an inspection followup item (285/9512-03).

ATTACHMENT

1 PERSONS CONTACTED

1.1 Licensee Personnel

R. Andrews, Division Manager, Nuclear Services
J. Chase, Manager, Fort Calhoun Station
R. Conner, Assistant Plant Manager
R. DeMeulmeester Sr., Alternate Operations Supervisor
H. Faulhaber, Supervisor, Maintenance
M. Frans, Supervisor, Systems Engineering
J. Gasper, Manager, Training
W. Gates, Vice President, Nuclear
L. Kusek, Manager, Nuclear Safety Review Group
E. Matske, Licensing Engineer
W. Orr, Manager, Quality Assurance and Quality Control
T. Patterson, Division Manager, Nuclear Operations
A. Richard, Acting Manager, Design Engineering
J. Sefick, Manager, Security Services
M. Tesar, Manager, Corrective Action Group
D. Trausch, Manager, Licensing and Industry Affairs
S. Willrett, Manager, Nuclear Procurement Services
R. Wylie, Manager, Nuclear Construction Management

The above personnel attended the exit meeting. In addition to these personnel, the inspector(s) contacted other personnel during this inspection period.

2 EXIT MEETING

An exit meeting was conducted on August 18, 1995. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee did not express a position on the inspection findings documented in this report. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.