UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

April 10, 2002

EA-02-059

R. T. Ridenoure
Division Manager - Nuclear Operations
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 550
Fort Calhoun, Nebraska 68023-0550

SUBJECT: FORT CALHOUN STATION - NRC INTEGRATED INSPECTION REPORT 50-285/02-03

Dear Mr. Ridenoure:

On March 1, 2002, the NRC completed an inspection at your Fort Calhoun Station. The enclosed report documents the inspection findings, which were discussed on March 1, 2002, with Mr. D. Bannister and other members of your staff. A supplemental exit meeting was conducted by telephone on March 11, 2002, with Mr. R. Ridenoure, Division Manager, Nuclear Operations, and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the NRC has identified six findings that were evaluated under the risk significance determination process as having very low safety significance (green). One finding involved the failure to take adequate corrective actions for defective valves in the emergency diesel air starting system. The second finding involved the failure to apply an adequate design analysis of emergency diesel generator fuel oil storage requirements. The third finding involved an inadequate procedure associated with testing of the turbine-driven auxiliary feedwater pump. The fourth finding involved an inadequate safety evaluation associated with a change to a surveillance test procedure. The NRC has determined that violations are associated with these issues. Because of the very low safety significance, the violations are being treated as noncited violations, consistent with Section VI.A.1 of the Enforcement Policy. Additionally, two findings were identified pertaining to the diesel-driven auxiliary feedwater pump, involving day tank inventory and automatic fire suppression, but they were not identified as violations. If you deny the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to

the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Fort Calhoun Station.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Charles S. Marschall, Chief
Engineering and Maintenance Branch
Division of Reactor Safety

Docket: 50-285
License: DPR-40

cc:
Mark T. Frans, Manager
Nuclear Licensing
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 550
Fort Calhoun, Nebraska 68023-0550

James W. Chase, Division Manager
Nuclear Assessments
Fort Calhoun Station
P.O. Box 550
Fort Calhoun, Nebraska 68023-0550

David J. Bannister, Manager - Fort Calhoun Station
Omaha Public Power District
Fort Calhoun Station FC-1-1 Plant
P.O. Box 550
Fort Calhoun, Nebraska 68023-0550

James R. Curtiss
Winston & Strawn
1400 L. Street, N.W.
Washington, D.C. 20005-3502

Chairman
Washington County Board of Supervisors
Washington County Courthouse
P.O. Box 466
Blair, Nebraska 68008

Sue Semerena, Section Administrator
Nebraska Health and Human Services System
Division of Public Health Assurance
Consumer Services Section
301 Centennial Mall, South
P.O. Box 95007
Lincoln, Nebraska 68509-5007

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	50-285
License:	DPR-40
EA No.	EA-02-059
Report No:	50-285/ 02-03
Licensee:	Omaha Public Power District
Facility:	Fort Calhoun Station
Location:	Fort Calhoun Station FC-2-4 Adm P.O. Box 399, Hwy. 75 - North of Fort Calhoun Fort Calhoun, Nebraska
Dates:	February 4 through March 1, 2001
Team Leader:	M. F. Runyan, Senior Reactor Inspector, Engineering Maintenance Branch
Inspectors:	L. E. Ellershaw, Senior Reactor Inspector, Engineering Maintenance Branch
	P.A. Goldberg, Reactor Inspector, Engineering Maintenance Branch
	J .F. Melfi, Reactor Inspector, Engineering Maintenance Branch
	W. M. McNeill, Reactor Inspector, Engineering Maintenance Branch
	C. A. Clark, Reactor Inspector, Engineering Maintenance Branch
	A. A. Sanchez, Operations Engineer, Operator Licensing Branch
Approved By:	Charles S. Marschall, Chief Engineering Maintenance Branch Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000285-02-03 on 02/04-03/01/20021; Omaha Public Power District; Fort Calhoun Station safety system design and performance capability, evaluation of changes, tests, or experiments.

The inspections were conducted by six regional inspectors. The inspectors identified six green findings, four of which were characterized as noncited violations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) and determined by using Inspection Manual Chapter 0609, "Significance Determination Process (SDP)." Findings for which the significance determination process does not apply are indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at http://www.nrc.gov/NRR/OVERSIGHT/index.html.

Cornerstone: Mitigating Systems

- Green. The licensee failed to take adequate corrective actions following discovery of a degraded emergency diesel generator air start system air relay valve in October 2001 and also failed to take adequate corrective actions following the operational failure of this valve in December 2001. This was identified as a violation of Criterion XVI to Appendix B of 10 CFR Part 50, "Corrective Action."

  This finding was of very low safety significance since there was no actual loss of safety function (the emergency diesel generator started successfully on its backup air starting system). Because of the low safety significance and the licensee's action to place the issue in their corrective action program (Condition Reports 2001-03772 and 2002-00475), this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy (50-285/0203-01) (Section 1R21.3.b).

- Green. The six fire protection sprinklers in the diesel-driven auxiliary feedwater pump room were located approximately 5 feet below the ceiling and would most likely not actuate until a fire in the room reached a considerable strength. The delay in actuation would result from the need for the hot gas layer to descend to the elevation of the sprinklers, which are normally positioned very close to the ceiling. Because the issue did not involve NRC regulations, a violation was not identified.

  This finding was of very low safety significance because the diesel-driven pump is not credited in the accident analysis (it is not safety-related, but has high risk significance), sensors in the room would cause a control room alarm, and manual suppression would be available. The licensee entered this issue into its corrective action program as Condition Report 200200498 (Section 1R21.4.b).

- Green. The fuel oil inventory in the day tank supplying the diesel-driven auxiliary feedwater pump was not being directly verified by the licensee's surveillance program. Instrument drift could result in failure to meet the design intent of maintaining the tank half full to provide a 4-hour run of the pump (which is not safety-related, but has a high risk significance). Because the issue did not involve NRC regulations, a violation was not identified.

This finding was of very low safety significance because there was no actual loss of safety function and the diesel engine has a integral generator that can power a transfer pump to replenish the day tank. The licensee entered this issue into its corrective action program as Condition Report 200200496 (Section 1R21.4.b).

- Green. The licensee staff had not accounted for several factors determining the diesel fuel oil on hand to meet the Technical Specification 2.7(1)m. requirement of 16,000 gallons of fuel oil in FO-1, the diesel generator fuel oil storage tank, and an additional 8,000 gallons of diesel fuel oil in FO-10, the auxiliary boiler fuel oil storage tank. The basis for the limit was to maintain a 7-day supply of fuel oil. The factors not accounted in the analysis were the effect of specific gravity on the loop uncertainties, the effect of specific gravity on the fuel consumption formula, the effect of the operation of the diesel driven auxiliary feedwater pump, the effect of errors in estimating volumes, and other minor errors. This was identified as a violation of Criterion III of Appendix B to 10 CFR Part 50, “Design Control,” which requires that the design basis be correctly translated into the technical specifications.

  This finding was of very low safety significance as the licensee always maintained additional inventory that would have provided a full 7-day supply of fuel oil, and the safety evaluation report credited the sufficiency of a 6-day supply. Because of the very low safety significance and that the licensee entered this finding into their corrective action program in Condition Reports 200200464, 200200373, and 200200304, this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy (50-285/0203-02) (Section 1R21.5.b).

- Green. Procedure SE-ST-AFW-3006, "Auxiliary Feedwater Pump FW-10, Steam Isolation Valve and Check Valve Tests," Revision 5, was inadequate. The procedure failed to identify that the motor-driven auxiliary feedwater pump was rendered inoperable during a portion of the test. This was identified as violation of Criterion V to Appendix B of 10 CFR Part 50, “Instruction, Procedures, and Drawings.”

  The finding was of very low safety significance because there was no actual loss of safety function as the turbine-driven pump remained operable and the dedicated operators could be considered to be highly reliable. Because of the very low safety significance, and because the licensee included the item in their corrective action program as Condition Report 200200483, this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy (50-285/0203-03) (Section 1R21.6.b).

- Green. The licensee failed to assess Procedure Change Request 42290 to Procedure SE-ST-AFW-3006, "Auxiliary Feedwater Pump FW-10, Steam Isolation Valve and Check Valve Tests," under the provisions of 10 CFR 50.59, resulting in a failure to comply with Technical Specification 2.5. The use of operator actions to maintain operability was not adequately evaluated. This procedure change should not have been made without prior NRC approval. This was identified as a violation of 10 CFR 50.59(a)(1)(iii).

  This finding was of very low safety significance because the reliability of the operator actions needed to restore system operability was very high. Because of the very low

safety significance, and because the licensee included the item in their corrective action program as Condition Report 200200632, this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Manual (50-0203/0203-04) (EA-02-059) (Section 1R21.6.b).

Report Details

1 REACTOR SAFETY

Introduction

A team inspection was performed to verify that facility safety system design and performance capability were adequate and that the initial design and subsequent modifications have preserved the current design basis of the systems selected for review. The scope of the review also included any necessary nonsafety-related structures, systems, and components that provided functions to support safety functions. The inspection effort also reviewed the licensee's programs and methods for monitoring the capability of the selected systems to perform the current design basis functions. This inspection verified aspects of the initiating events, mitigating systems, and barrier cornerstones.

The probabilistic risk assessment model for Fort Calhoun Station is based on the capability of the as-built safety systems to perform their intended safety functions successfully. The area and scope of the inspection were determined by reviewing the licensee's probabilistic risk analysis models to identify the most risk significant systems, structures, and components according to their ranking and potential contribution to dominant accident sequences and/or initiators. Deterministic effort was also applied in the selection process by considering recent inspection history, recent problem area history, and all modifications developed and implemented. The team reviewed in detail the emergency diesel generators and the auxiliary feedwater system. The primary review prompted parallel review and examination of support systems, such as, electrical power, instrumentation, room cooling systems, and related structures and components.

The objective of this inspection was to assess the adequacy of calculations, analyses, engineering processes, and engineering and operating practices that were used to support the performance of the safety systems selected for review and the necessary support systems during normal, abnormal, and accident conditions. Acceptance criteria utilized by the NRC inspection team included NRC Regulations, the technical specifications, applicable sections of the Final Safety Analysis Report, applicable industry codes and standards, as well as industry initiatives implemented by the licensee's programs.

An inspection to assess the performance of the licensee's program to meet the regulatory requirements of 10 CFR Part 50.59, "Changes, Tests, And Experiments," was also conducted by one member of the team, during the first week of the inspection.

1R02 Evaluation of Changes, Tests, and Experiments (71111.02)

a. Inspection Scope

The inspectors reviewed a selected sample of 11 safety evaluations to verify that the licensee had appropriately considered the conditions under which the licensee may make changes to the facility or procedures or conduct tests or experiments without prior NRC approval in accordance with 10 CFR 50.59.

The inspectors reviewed 11 screenings pertaining to modifications, and procedure and calculation revisions, in which the licensee determined that evaluations were not required, to ensure that the licensee's exclusion of a full evaluation was consistent with the requirements of 10 CFR 50.59.

The inspectors evaluated the effectiveness of the licensee's corrective action process to identify and correct problems concerning their performance associated with 10 CFR 50.59 requirements. In this effort, the inspectors reviewed four condition reports. Further, the inspectors reviewed the most recent 10 CFR 50.59 program audit. Additionally, the inspectors reviewed the 10 CFR 50.59 training curriculum and the qualification records of a sample of independent technical reviewers identified in the screening and evaluation forms.

b Findings

No findings of significance were identified.

1R21 Safety System Design and Performance Capability (71111.21)

.1 System Requirements

a. Inspection Scope

The team reviewed the following attributes for the auxiliary feedwater system and the emergency diesel generators: (1) process medium (water, steam, and air), (2) energy sources, (3) control systems, and (4) equipment protection. The team verified that procedural instructions to operators were consistent with operator actions required to meet, prevent, and/or mitigate design basis accidents. The review also considered requirements and commitments identified in the Final Safety Analysis Report, technical specifications, design basis documents, and plant drawings. These reviews further verified that required support functions for the emergency diesel generators and the auxiliary feedwater system would be available.

b. Findings

No findings of significance were identified.

.2 System Condition and Capability

a. Inspection Scope

The team reviewed the periodic testing procedures for the auxiliary feedwater system and the emergency diesel generators to verify that the design requirements were adequately demonstrated. The team reviewed the environmental qualification of a sample of system components to verify the capability to operate under design environmental conditions and the assumed operating parameters including: voltage, speed, power, flow, temperature, and pressure.

The team also reviewed the systems' operations by conducting system walkdowns; reviewing normal, abnormal, and emergency operating procedures; and reviewing the Final Safety Analysis Report, technical specifications, design calculations, drawings, and procedures.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The team reviewed a sample of problems identified by the licensee in the corrective action program to evaluate the effectiveness of corrective actions related to design issues. The sample included open and closed condition reports for the past three years that identified issues related to or affecting the selected systems.

b. Findings

Inadequate Corrective Action for Emergency Diesel Generator Air Relay Valves

The team identified two instances of inadequate corrective action related to maintenance and testing of the air relay valves in the emergency diesel generator air start system. The air start system for each diesel generator contained two air relay valves, one designated as primary and the other as secondary. Absent other failures, both of the air relay valves (primary and secondary) must fail in order for an emergency diesel generator to fail to start.

On October 17, 2001, a work request was written to address a leaking air relay valve (SA-196) that was discovered on the Division 2 emergency diesel generator air start system. Initially given a high priority, the work request was later downgraded, given that it still functioned, and assigned a completion date of January 28, 2002. The valve

subsequently failed during a surveillance test on December 12, 2001. The secondary air start system functioned as designed and successfully started the diesel. There was no immediate effect on diesel generator operability because it was already declared inoperable for maintenance. Starting air relay valve SA-196 was replaced on December 12, 2001.

No condition reports were written following discovery of the leaking air relay valve in October 2001. Three condition reports were generated concerning the December 2001 air relay valve failure. The cause of the failed valved was classified as an O-ring aging/wear issue. Although mentioned, the potential for common cause failure was not addressed in the condition reports. Neither before nor after the events mentioned were the air relay valves (safety system components) incorporated in any preventative maintenance or replacement program nor were they addressed from a rigorous engineering standpoint. It was not until the team inquired into the preventative maintenance of these valves that a condition report was generated to evaluate these possible actions.

The team determined that these conditions had a credible impact on safety and that the issue was more than minor since the air relay valves on the emergency diesel air start system began to exhibit signs of degradation and one actual failure. The team also concluded that this issue affected the mitigating system cornerstone since at least one of the emergency diesel generators is required to mitigate a design basis event, and the safety function could have been impacted.

Using Phase 1 of the Significance Determination Process, the team determined that only the mitigation systems cornerstone was affected and that there was no actual loss of safety function as the emergency diesel generators still started on demand. Therefore, the problem had a very low safety significance (Green).

Criterion XVI of Appendix B to 10 CFR Part 50 states, in part, that “[m]easures shall be established to assure that conditions adverse to quality . . . are promptly identified and corrected.” In contrast to the above, the team determined that the licensee missed the opportunity to promptly identify the need for corrective action concerning the leaking air relay valve (SA-196) in October 2001. The licensee also failed to implement proper corrective action concerning the failure of that same valve in December 2001. However, due to the low safety significance and the licensee’s action to place the issue in their corrective action program (Condition Reports 200103772 and 200200475), this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy (50-285/0203-01).

.4 System Walkdowns

a. Inspection Scope

The team performed walkdowns of the accessible portions of the auxiliary feedwater system and the emergency diesel generators as well as the required support systems. The walkdowns focused on the installation and configuration of power supplies, piping, components, and instruments. During the walkdowns, the team assessed:

- The placement of protective barriers and systems,
- The susceptibility to flooding, fire, or environmental conditions,
- The physical separation of trains and the provisions for seismic concerns,
- Accessibility and lighting for any required local operator action,
- The materiel condition and preservation of systems and equipment, and
- the conformance of the currently installed system configurations to the current design and licensing bases.

b. Findings

Fire Protection of Diesel-Driven Auxiliary Feedwater Pump

The team identified an issue related to the location of fire protection sprinkler heads in the room that houses the nonsafety-related diesel-driven auxiliary feedwater pump (FW-54). This pump was included in the scope of the inspection because it has significant risk importance. Six sprinkler heads were positioned approximately 5 feet below the ceiling of the room and approximately 4 feet to the side of the pump. A horizontal 12X12-inch square sheet metal heat collector was located directly above each sprinkler head .

Fire codes typically require sprinkler heads to be located within 1 or 2 feet of the ceiling to ensure that they can respond quickly to the formation of a hot gas layer in the room. Also, some industry testing has shown that heat collectors of the type described above can retard activation by preventing the free flow of hot gases in the vicinity of the fusible links in the heads. The team considered the off-ceiling location of the sprinkler heads to render the diesel-driven auxiliary feedwater pump vulnerable to a small fire that would, in all likelihood, activate the control room fire alarm sensor, but which could burn for a considerable time before either manual suppression methods were applied or the hot gas layer descended to the elevation of the fusible links. This scenario would potentially extend the length of time needed to recover the pump in case it was needed as a contingency (if the other auxiliary feedwater pumps were unavailable).

Because the issue did not involve NRC regulations, a violation was not identified. However, the team determined that this finding was of more than minor significance because it had a credible impact on safety. That is, the survival or recovery of a risk-

significant component could be affected. Using Phase I of the significance determination process, the team determined that the issue affected the mitigating systems cornerstone, because the pump provides risk mitigation for the auxiliary feedwater system and the condition potentially impacted the timing at which automatic suppression would extinguish a fire in the pump room. However, the finding had very low risk significance (green) because sensors in the room would cause a control room alarm, manual suppression would be available, and there was not an actual loss of safety function. Because the issue did not involve NRC regulations, a violation was not identified. The licensee initiated Condition Report 200200498 to examine this concern.

Inventory of Diesel-Driven Auxiliary Feedwater Pump Fuel Oil Day Tank

The 150-gallon fuel oil day tank for the diesel-driven auxiliary feedwater pump had three level instruments: level sensors LS-2120 and LS-2121 which control (start and stop) the transfer pump used to refill the day tank and cause a low level alarm in the control room, respectively; and LI-2120, which is a local dial indicator of tank level. The tank was kept by procedure at least half full to ensure the capability of the pump to run for at least 4 hours. This run time was provided, in part, for a station blackout situation, where the diesel-driven pump functions as a backup to the turbine-driven pump. The level instruments were not calibrated but were functionally tested every two years under Preventive Maintenance Procedure IC-PM-FW-0900, “Operational Verification of FW-54 Fuel Oil Day Tank FO-38 Controls,” Revision 1. This test procedure did not require that the actual level in the tank be verified. Therefore, instrument drift over a long period of time could result in tank levels deviating from the design objective.

The team postulated the following scenario: the level sensors and level indicator drift in tandem over time to a lower setpoint, but still appear to be functioning normally during the preventive maintenance functional tests. The drift continues following a test to a point where the tank is actually less than half full and the low-level sensor of LI-2120 does not come in when the pump is started and expends the available fuel (in response to an event). The pump runs for less than 4 hours and then runs out of fuel oil as the transfer pump fails to start and replenish the inventory.

Because the issue did not involve NRC regulations, a violation was not identified. However, the team determined that this finding was of more than minor significance because it had a credible impact on safety. That is, the design function of a risk-significant component could be affected. Using Phase I of the significance determination process, the team determined that the issue affected the mitigating systems cornerstone, because it potentially impacted core decay heat removal. However, the finding had very low risk significance (green) because there was not an actual loss of safety function and the diesel engine powering the pump has a generator that can power a transfer pump to replenish the day tank inventory. Because the issue did not involve NRC regulations, a violation was not identified. The licensee initiated Condition Report 200200496 to review this concern.

.5 Design Review

a. Inspection Scope

The team reviewed the current as-built instrument and control, electrical, and mechanical design of the auxiliary feedwater system and the emergency diesel generators. These reviews included a review of design assumptions, calculations, required system thermal-hydraulic performance, electrical power system performance, protective relaying, and instrument setpoints and uncertainties. The team also performed a single failure review of individual components to determine the effects of such failures on the capability of the systems to perform their design safety functions.

The team reviewed calculations, drawings, specifications, vendor documents, Final Safety Analysis Report, technical specifications, emergency operating procedures, and temporary and permanent modifications.

b. Findings

Failure to Account Adequately for Diesel Generator Fuel Oil Inventory

The team found that licensee staff had not accounted for several factors in the determination of the diesel fuel oil on hand to meet the Technical Specification 2.7(1)m. limit of 16,000 gallons of fuel oil in FO-1, the diesel generator fuel oil storage tank, and an additional 8,000 gallons of diesel fuel oil in FO-10, the auxiliary boiler fuel oil storage tank. The basis for the limit was to maintain a 7-day supply of fuel oil.

Calculation FC03382**, "** Diesel Generator LOCA Loads ETS-2.08N-L1," Revision 15**,** established 24,280 gallons as the required inventory of fuel oil. The design calculations, combined with the technical specification limits, assured a minimum fuel oil inventory of 25,220 gallons (940 gallon margin). This information was detailed in a licensee application for "Amendment of the Operating License," dated September 17, 1993. The amendment was approved by a safety evaluation report, dated March 29, 1994. The NRC staff found that the proposed fuel oil inventory was actually below a seven-day supply, but above a six-day supply and that this situation was acceptable because replacement oil could be obtained with high confidence within a period of 48 hours.

The team reviewed Calculation FC06289, "Diesel Generator Fuel Oil Storage Tanks Level TLU Calculation," Revision 0. The team found that the licensee had not assessed possible variations in specific gravity in the total loop uncertainty calculation. The licensee can accept diesel fuel with a range of specific gravities between 0.8762 and 0.8156 or 30 to 42 American Petroleum Institute (API) units, a variation of a little more than 7 percent. The level indicators assumed a specific gravity of 0.8550. Use of the densest permissible fuel oil would result in a measured volume discrepancy of approximately 2.5 percent. The team considered the total loop uncertainty calculation (FC06289) to be inadequate. The licensee staff documented this concern in Condition Report 200200464.

The level indicators for the main and auxiliary boiler tank were mechanically scribed with an indication ranging from 250 -18130 gallons. The licensee's calculation for the volume of the fuel oil tanks, FC06289, calculated a volume of 240 -18050 gallons. This resulted in a non-conservative zero shift of the indication. The licensee identified this as Condition Report 200200373.

The team reviewed Engineering Analysis 92-047, "Diesel Generator Fuel Oil Requirements," Revision 0. This calculation established a formula relating fuel consumption to load demand on the diesel generator based on some test runs. The formula was used in subsequent calculations, such as Calculation FC03382. The team found that specific gravity had not been used as a variable in establishing the formula for fuel consumption. Text book data (Diesel Engine Reference Book by L. R. C. Lilly, published by Butterworths in 1984) indicated that the energy level of the fuel oil could vary across the permissible range of American Petroleum Institute units by 2.34 percent. The licensee staff documented the failure to consider this within the analysis in Condition Report 200200464.

The team found that the licensee staff had not considered the consumption of fuel oil by the diesel-driven auxiliary feedwater pump (FW-54) in the depletion of oil reserves. The fuel oil transfer pump (FO-37) on the diesel-driven auxiliary feedwater pump was used under certain conditions to transfer fuel oil from the auxiliary boiler tank to the fuel oil tank. The team estimated the effect of operation of Pump FW-54 for the time to transfer 8,000 gallons to be 286 gallons, or 1.18 percent of 24,280 gallons. Procedure EPIP-RR-17A, "TSC Administrative Logistics Coordinator Actions," Revision 19, did not identify the impact of Pump FW-54 consumption on the fuel oil inventory. The licensee staff documented this analytical oversight in Condition Report 200200464.

The team questioned the volume used in calculations for the diesel generator engine tank. The team measured and calculated the volume of the tank to be a maximum of 520 gallons per diesel generator, not the 550 gallons assumed. The licensee staff did not have documentation of the unusable volume below the suction pipe of the fuel pumps in the diesel engine base tank. The licensee estimated the unusable volume in the diesel generator engine tank to be 30 gallons per tank. Together, the two errors were 120 gallons, or 0.50 percent of 24,280 gallons. The licensee staff documented this concern in Condition Report 200200304.

In summation, the errors identified (only the major sources are discussed above) amounted to a negative 5.23 percent or 1,271 gallons (well in excess of the analyzed margin). Therefore, the team concluded that the technical specification limits for the storage of emergency diesel generator fuel oil were not adequately supported by the design calculations.

The team evaluated this finding using the significance determination process. The finding did not have a credible impact on safety because the technical specification storage limits provided more than a six-day supply of fuel oil, which was a sufficient amount according to the safety evaluation report. However, inadequate design control resulted in a technical specification limit that failed to assure that the assumed operational requirement was met. This is important, because both the licensee and the NRC depend on accurate technical specifications to ensure that operation of the plant is

consistent with design assumptions. The safety significance of the finding was found to be very low (Green) because the 6-day requirement accepted in the safety evaluation report was met.

The team identified this finding as a violation of Criterion III of Appendix B to 10 CFR Part 50, “Design Control,” which requires that the design basis be correctly translated into the technical specifications. Because of the very low safety significance and the licensee’s documentation of this issue into their corrective action program (Condition Reports 200200464, 200200373, and 200200304), this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy (50-285/0203-02).

.6 Safety System Inspection and Testing

a. Inspection Scope

The team reviewed the program and procedures for testing and inspecting selected components in the auxiliary feedwater system and the emergency diesel generators. The review included the results of surveillance tests required by the technical specifications.

During the week of February 25, 2002, the team observed the quarterly performance test of the turbine-driven auxiliary feedwater pump, using Procedure SE-ST-AFW-3006, "Auxiliary Feedwater Pump FW-10, Steam Isolation Valve, and Check Valve Tests," Revision 26.

b. Findings

Issues Related to Testing of Turbine-Driven Auxiliary Feedwater Pump

The team identified two green noncited violations related to periodic testing of the turbine-driven auxiliary feedwater pumps. Both of these issues involved crediting operator actions in lieu of automatic actions or realigning equipment that normally only maintains its standby configuration in response to an accident condition. These issues may apply to additional testing or maintenance conducted at Fort Calhoun Station.

The NRC issued guidance concerning operator actions in Information Notice (IN) 97-28, “Crediting of Operator Actions in Place of Automatic Actions and Modifications of Operator Actions, Including Response Times.” The following is an excerpt from this Notice:

> "The original design of nuclear power plant safety systems and their ability to respond to design-basis accidents were described in licensees' FSARs and were reviewed and approved by the NRC. Most safety systems were designed to rely on automatic system actuation to ensure that the safety systems were capable of carrying out their intended functions. In a few cases, limited operator actions, when appropriately justified, were approved. Proposed changes that substitute manual action for automatic system actuation or modify existing operator actions, including operator response times, previously reviewed and approved during the

> original licensing review of the plant will, in all likelihood, raise the possibility of a USQ. Such changes must be evaluated under the criteria of 10 CFR 50.59 to determine whether a USQ is involved and whether NRC review and approval is required before implementation. A licensee may not make such changes before it receives approval from the NRC when the change, test, or experiment may (1) increase the probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously analyzed in the FSAR, (2) create the possibility of an accident or a malfunction of a different type than any previously evaluated in the FSAR, or (3) reduce the margin of safety as defined in the basis for any TS. In the NRC staff's experience, many of the changes of the type described above proposed by licensees do involve a USQ."

In the two examples that follow, the licensee failed to determine properly whether changes involving the substitution of manual for automatic actions created an inoperable condition or a licensing issue requiring NRC approval.

Inadequate Test Procedure

While observing the quarterly performance test of the turbine-driven auxiliary feedwater pump, FW-10, in accordance with Procedure SE-ST-AFW-3006, "Auxiliary Feedwater Pump FW-10, Steam Isolation Valve and Check Valve Tests," Revision 5, the team noted that, in Steps 7.16 through 7.23 of the procedure, the normally locked-open manual suction valve, FW-350, of the motor-driven auxiliary feedwater pump was closed by an operator and the control room switch for this pump was placed in pull-to-lock. While in this configuration, the turbine-driven auxiliary feedwater pump, FW-6, as well as the motor-driven pump discharge check valve were tested. The test procedure prescribed that dedicated operators be stationed at the closed motor-driven pump suction valve and at the pump switch in the control room ready to restore the normal configuration if so directed. The procedure considered the motor-driven pump to be operable in this configuration as long as the operators were stationed and ready to perform actions as prescribed. The team disagreed and stated that the motor-driven pump should have been declared inoperable while in this configuration and that the licensee should have entered Technical Specification 2.5(1) limiting condition for operation, which permits up to 24 hours operation with one of the two safety-related auxiliary feedwater pumps inoperable. The basis for the team's position was that the technical specifications and the Final Safety Analysis Report, as well as any other regulatory document, did not permit operator actions to be used as a condition to establish equipment operability during surveillance testing. The team considered the cause of this problem to be an inadequate test procedure, for failing to identify an instance of inoperability.

This finding was determined to have a credible impact on safety, in that, the failure to open the suction valve or restore the switch position of the motor-driven pump could potentially cause damage to the pump or preclude the flow of auxiliary feedwater to the steam generators.

Using Phase 1 of the Significance Determination Process, the team determined that only the mitigation systems cornerstone was affected and there was no actual loss of safety function as the turbine-driven pump remained operable and the dedicated operators could be considered to be highly reliable. Therefore, the problem had a very low safety significance (Green).

The team determined that the test procedure was inadequate and identified this as a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Because of the very low safety significance, and because the licensee included the finding in their corrective action program as Condition Report 200200483, this violation is being treated as a noncited violation (50-285/0203-03) in accordance with Section VI.A.1 of the Enforcement Policy.

Inadequate Safety Evaluation for Change to Surveillance Test Procedure

The team noted that, during a portion of Procedure SE-ST-AFW-3006, both of the safety-related auxiliary feedwater pumps (the turbine-driven and the motor-driven) were rendered inoperable at the same time. Step 7.29 of the procedure declared the turbine-driven pump inoperable since pump discharge flow was about to be directed to the emergency feedwater storage tank and operators were to take control of the pump speed control loop. In Step 7.34, the locked-open manual feedwater valve, FW-170, was closed and normally-closed motor-operated valve, HCV-1384, the main and auxiliary feedwater cross-connect valve, was opened. In step 7.36, the normally locked-closed discharge valve to the emergency feedwater storage tank, FW-1049, was opened. The effect of changing the positions of these three valves was to direct flow to the emergency feedwater storage tank and block the alternate auxiliary feedwater flow path to the steam generator feed rings (where normal feedwater enters the steam generators). The normal auxiliary feedwater discharge path to the steam generators remained open, but the flow from both the turbine-driven pump and the motor-driven pump was diverted to the auxiliary feedwater storage tank. At this time, the licensee did not declare the motor-driven feedwater pump inoperable even though the flow from this pump would take the same path as the turbine pump to the emergency feedwater storage tank. The team noted that the non-safety-related diesel-driven feedwater pump, FW-54, would be inoperable as well, since its flow would also go to the emergency feedwater storage tank instead of the steam generator. With flowpaths open both to the steam generators and to the storage tank, it was uncertain (the licensee had not performed an evaluation) if sufficient flow would be available to the steam generators in this configuration (even if all pumps were running). The licensee credited operator actions in the control room to restore Motor-Operated Valve HCV-1384 to its normal closed position, which would permit the motor-driven pump to deliver its entire flow to the steam generators. The team concluded that the use of operator actions as a condition for operability was not permitted for surveillance testing.

Technical Specification 2.5, "Steam and Feedwater Systems," states, "(1) during Modes 1 and 2, one auxiliary feedwater pump may be inoperable for up to 24 hours, provided that the redundant component shall be tested to demonstrate operability", and "(3) All valves, interlocks and piping associated with the above components required to function during accident conditions are operable. Manual valves that could interrupt auxiliary feedwater flow to the steam generators shall be locked in the required position

to ensure a flow path to the steam generators." The team determined that the failure of the licensee to maintain the motor-driven auxiliary feedwater pump operable while the turbine-driven pump was declared inoperable during the test and, in addition, the failure to maintain the manual valves in the required locked position to ensure a flow path to the steam generators was contrary to Technical Specification 2.5.

The team reviewed Procedure Change Request 42290, dated April 21, 1994. This procedure change revised the auxiliary feedwater pump test procedure to permit a full-flow test of the turbine-driven pump and included credit for operator actions to manipulate valves and change lineups to maintain the operability of the motor-driven pump.

The team reviewed the 10 CFR 50.59 screening associated with Procedure Change Request 42290. Question 9.4 of the screening, asking whether the change involved a change to the technical specifications, was answered “no,” stating that Technical Specification 2.5 had been reviewed and needed no changes. The team noted that the screening failed to demonstrate that operator actions prescribed by the procedure change would be sufficient to ensure that the motor-driven pump could still meet its design function, in terms of both reliability and timing and, thus, maintain compliance with Technical Specification 2.5 (1). Also, the screening failed to identify that Technical Specification 2.5 (3) was affected by the unlocking and movement of locked valves that would need to be manually re-positioned.

10 CFR 50.59(a)(1)(iii) [as the regulation existed at the time of this violation] allowed a licensee to conduct tests or experiments not described in the Final Safety Analysis Report without prior Commission unless the proposed test or experiment involved a change in the technical specifications or an unreviewed safety question. The team concluded that the licensees' failure to recognize that Technical Specifications 2.5(1) and 2.5(3) were not being met by relying on operator action, and that therefore prior Commission approval was needed, was a violation of 10 CFR 50.59(a)(1)(iii).

This finding was determined to have a credible impact on safety, in that, it involved a flawed analysis that ultimately led to operation of the plant in a manner not anticipated in the original license.

Using Phase 1 of the Significance Determination Process, the team determined that only the mitigation systems cornerstone was affected and that the reliability of the operator actions needed to restore system operability was very high. Also the plant was in this configuration for only approximately 1 hour per month. Therefore, this finding was determined to have a very low safety significance (Green).

Because of the low safety significance, and because the licensee included the item in their corrective action program as Condition Report 200200632, this violation is being treated as a noncited violation (50-285/0203-04) (EA 02-059) in accordance with Section VI.A.1 of the Enforcement Manual.

4 OTHER ACTIVITIES (ZA)

4OA6 Management Meetings

Exit Meeting Summary

The team leader presented the inspection results to Mr. D. Bannister, Plant Manager, and other members of licensee management at the conclusion of the onsite inspection on March 1, 2002.

At the conclusion of this meeting, the team leader asked the licensee's management whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

A supplemental exit meeting was conducted by telephone on March 11, 2002, with Mr. R. Ridenoure, Division Manager, Nuclear Operations, and other members of licensee management.

ATTACHMENT

Licensee Contacts :

D. Bannister, Plant Manager
G. Cavanaugh, Supervisor, Station Licensing
M. Frans, Manager, Nuclear Licensing
S. Gebers, Corporate Health Physicist
R. Haug, Manager, Chemistry
R. Lentz, Licensing Engineer
E. Matzke, Station Licensing Engineer
J. McManis, Manager, Design Engineering
G. Miller, Inservice Testing Coordinator
M. Puckett, Manager, Radiation Protection
J. Ressler, Mechanical Design Engineer
R. Ridenoure, Division Manager, Nuclear Operations

NRC:

W. Walker, Senior Resident Inspector
L. Willoughby, Resident Inspector

ITEMS OPENED AND CLOSED

Opened and Closed

50-285/0203-01	NCV	Inadequate Corrective Action for Defective Emergency Diesel Generator Air Starting System Air Relay Valves (Section 1R21.3.b)
50-285/0203-02	NCV	Inadequate Design Control of Emergency Diesel Generator Fuel Oil Inventory (Section 1R21.5.b)
50-285/0203-03	NCV	Inadequate Procedure for Testing Auxiliary Feedwater Pumps (Section 1R21.6.b)
50-285/0203-04	NCV	Inadequate 10 CFR 50.59 Safety Evaluation Associated with Change to Auxiliary Feedwater Pump Test Procedure (Section 1R21.6.b)

Documents Reviewed

Condition Reports:

199601064	199901600	200100407	200101907	200103112	200200160
199700434	199901608	200100623	200101907	200103112	200200184
199700523	200000708	200101064	200102254	200103141	200200275
199701063	200000723	200101108	200102254	200103319	200200283
199701248	200000866	200101108	200102256	200103419	200200286
199800133	200000870	200101265	200102256	200103557	200200304
199800495	200000931	200101265	200102383	200103692	200200322
199801246	200001124	200101398	200102407	200103716	200200464
199801563	200001194	200101472	200102419	200103736	200200475
199801642	200001758	200101515	200102419	200103772	200200476
199900170	200100008	200101515	200102437	200103837	200200496
199900611	200100399	200101854	200102437	200200126	200200498
199901062	200100407	200101906	200102573	200200126	200200632
199901558	200100407				

Calculations:

FC03382, “Diesel Generator LOCA Loads ETS-2.08N-L1,” Revision 15

FC03519, “Analysis Summary for Loss of all Auxiliary Feedwater Equipment due to FW-10 Steam Line Break,” Revision 0

FC05007, “Usable Capacity of Emergency Feedwater Storage Tank FW-19,” Revision 0

FC05040, “Calculation of the Flowrate for the Auxiliary Feedwater Pump (FW-6), During Last Startup,” Revision 0

FC05045, “FW-10 Steam Line HELB,” Revision 01

FC05072, “Auxiliary Feedwater Maximum Operating Temperature and Pressure Calculation,” Revision 0

FC05073, “Auxiliary Feedwater Pumps Design Calculation,” Revision 0

FC05361, “Auxiliary Feedwater System Calculation (Pump Design and Turbine Drive Controller),” Revision 5

FC05365, “Auxiliary Feedwater Flow and Head Requirements,” Revision 0

FC05467, “Fuel Oil Transfer Pump FO-4A-1 and 2 and FO-4B-1 and 2 Discharge Pressure and Motor Horsepower,” Revision 0

FC05492, “Diesel and Operating Conditions for the Diesel Generator Fuel Oil System,” Revision 1

FC05587, “Emergency Diesel Generator Instrument/Relief Valve Setpoint Calculation,” Revision 1

FC05829, “MOV Degraded Voltage Calculation,” Revision 8

FC05916, “Operating Temperature Limits for DG-1 and DG-2,” Revision 3

FC06148, “Auxiliary Feedwater Storage Requirements,” Revision 3

FC06181, “Auxiliary Feedwater System Flow Rates with SE-ST-AFW-3005 Recirculation Path to EFWST in Service,” Revision 0

FC06289, “Diesel Generator Fuel Oil Storage Tanks Level TLU Calculation,” Revision 0

FC06638, “Capacity of Fuel Oil Tank FO-38,” Revision 0

Engineering Analyses:

EA-FC-029, "IST Review of Surveillance Test Pump Procedures," Revision 0

EA-FC-90-028, "Effect of Single Failure of FW-10 Overspeed Limiting Governor," Revision 2

EA-FC-91-010, No Title, Revision 0

EA-FC-91-084, Breaker/Fuse Coordination Study, Revision 4

EA-FC-92-047, Diesel Generator Fuel Oil Requirements, Revision 0

EA-FC-92-072, Diesel Generator Loading Transient Analysis ETS-2.08N-MS1, Revision 2

EA-FC-92-080, “Resolution of MOV Operating Conditions Design Basis Discrepancies,” Revision 5

EA-FC-92-082, “Provide Test Conditions for MOVs Covered by GL 89-10,” Revision 4

EA-FC-93-010, "Steam Leak Through FW-1314 in Room 19," Revision 0

EA-FC-95-022, NFPA 13 Code Compliance Verification Checklist - Diesel Generator Rooms Dry-Pipe System, Revision 2

EA-FC-95-048, “Evaluation of Susceptibility of Safety Related Power Operated Gate Valves to Pressure Locking or Thermal Binding,” Revision 2

EA-FC-96-12, “Safety Significance of the MFIVs and Their Ability to Open,”
Revision 0EA-FC-96-134, Evaluation of Hydraulic Snubber Inspection Results, Revision 0

EA-FC-97-012, "Evaluation of Reduced Auxiliary Feedwater Flow," Revision 0

IC-PM-FW-0900, "Operational Verification of FW-54 Fuel Oil Day Tank FO-38 Level Controls," Revision 1

OP-ST-AFW-0004, “Auxiliary Feedwater Pump FW-10 Operability Test,” Revision 21

Design Basis Document

SDBD-DG-112, Emergency Diesel Generators, Revision18

Drawings:

B120D06002, Sheet 1, Auxiliary Fuel Oil Day Tank, Revision 5

B120F14501, Sheet 2, Schematic Engine Control, Revision 15

D-4665, DG-1 Diesel Generator One Line Diagram, Revision 5

D-4666, DG-2 Diesel Generator One Line Diagram, Revision 5

11405-E-1, Main One Line Diagram, Revision 36

11405-E-3, 4.16 KV. Auxiliary Power One Line Diagram, Revision 19

11405-E-7, Sheet 2, 480 Volt Primary Plant Motor Control Center One Line Diagram, Revision 17

11405-M-282, Sheet 1, Fuel Oil Flow Diagram, Revision 54

13229, Fuel Oil Tank FO-1, Revision 5

17016, DG-1 and DG-2 Diesel Generator Assembly, Revision 5

17396, Sheet 16, Schematic Engine Control, Revision 6

17398, Sheet 18, Schematic, Engine Control, Revision 8

Fig. 8.1-1, Simplified One Line Diagram Plant Electrical System, Revision 117

11405-M-252, Cover Sheet, “Composite Flow Diagram Main Steam P & ID,” Revision 24

11405-M-252, Sheet 1, “Flow Diagram Steam P & ID,” Revision 92

11405-M-253, Cover Sheet, “Composite Flow Diagram Steam Generator Feedwater and Blowdown P & ID,” Revision 26

11405-M-253, Sheet 4, “Flow Diagram Steam Generator Feedwater and Blowdown P & ID,” Revision 29

11405-M-254, Cover Sheet, “Composite Flow Diagram Condensate P & ID,” Revision 31

11405-M-262, Sheet 1, “Fuel Oil Flow Diagram P & ID,” Revision 54

Miscellaneous:

OPPD Letter Dated September 17, 1993

NRC Safety Evaluation Date March 29, 1994

System Training Manual, Volume 16, Emergency Diesel Generators, Revision 19

Nuclear Procurement Manual NPM-260, Revision 1

Material Discrepancy Report [PO. S042950], December 2, 1999

EPRI Report NP-6608, “Shelf Life of Elastomeric Components,” May 1994

Self Assessment LIM-01-0024, an assessment of the 10 CFR 50.59 process, report dated December 28, 2001

Report LIC-01-0076, 10 CFR 50.59 Twenty Four Month Report to NRC, October 5, 2001

Safety Audit Review Committee Report (Meeting Minutes) 02-QUA-011, January 23, 2002

Procedure PED-QP-3, “Calculation Preparation, Review, and Approval,” Revision 7 dated June 14, 2001

10 CFR 50.59 Continuing Training Plan

SDBD-FW-AFW-117, "Design basis document auxiliary feedwater," Revision 23

TM C438.0010, Technical Manual for Coffin Turbo Pump Auxiliary Feed Pump,” Revision 10

Procedures:

AOP-06, "Fire Emergency," Revision 9AOP-07, "Evacuation of Control Room," Revision 7

AOP-17, "Loss of Instrument Air," Revision 4

AOP-23, "Reset of Engineered Safeguards," Revision 6

AOP-31, "161 KV Grid Malfunctions," Revision 5

AOP-32, "Loss of 4160 Volt or 480 Volt Bus Power," Revision 6

EM-ST-DG-0001, "Diesel Generator and Emergency 4.16 kV Bus Protective Relays," Revision 7

EM-ST-ESF-0001, "Quarterly Engineered Safety Features Offsite Power Low Signal (OPLS) Sensor Check," Revision 7

EOP-00, "Standard Post Trip Actions," Revision 15

EOP-01, "Reactor Trip Recovery," Revision 8

EOP-02, "Loss of Offsite Power, Loss of Forced Circulation," Revision 10

EOP-03, "Loss of Coolant Accident," Revision 18

EOP-07, "Station Blackout," Revision 8

EPIP-RR-17A, TSC Administrative Logistics Coordinator Actions, Revision 19

FCSG-23, “10 CFR 50.59 Resource Manual,” Revision 1

NOD-QP-3, “10 CFR 50.59 Reviews,” Revision 23

OI-AFW-4, “Auxiliary Feedwater Startup and System Operation,” Revision 42

OI-AWF-1-CL-A, "Operating Instruction Auxiliary Feedwater," Revision 49

OI-DG-1, Diesel Generator No. 1, Revision 31

OI-DG-2, Diesel Generator No. 2, Revision 36

OP-FT-DG-0002, "Function Test: Emergency Diesel Generator Endurance Functional Test," Revision 9

OP-PM-AFW-0004, "Third Auxiliary Feedwater Pump Operability Verification," Revision 23

OP-ST-AFW-0001, "Auxiliary Feedwater System Valve Alignment Check," Revision12

OP-ST-AFW-0004, “Auxiliary Feedwater Pump FW-10 Operability Test,” Revision 21

OP-ST-DG-0001, "Surveillance Test: Diesel Generator 1 Check," Revision 35

OP-ST-DG-0002, "Surveillance Test: Diesel Generator 2 Check," Revision 36

OP-ST-ESF-0001, "Surveillance Test: Diesel Auto Start Initiating Circuit Test," Revision 18

OP-ST-ESF-0002, "Surveillance Test: Diesel Generator No. 1 and No. 2 Auto Operation," Revision 24

OP-ST-ESF-0006, "Engineered Safety Features Off-site Power Low Signal (OPLS) Functional Test," Revision 17

OP-ST-ESF-0022, "S1-2 Automatic Load Sequencer Test," Revision 18

OP-ST-ESF-0023, "S2-2 Automatic Load Sequencer Test," Revision 19

PED-SEI-12, "Guidelines for FCS lube oil test results and action parameters," Revision 7

SO-M-11, “Maintenance Work Control,” Revision 54

SO-R-01, “Reportability Determination,” Revision 08

SO-R-02, “Condition Reporting and Corrective Action,” Revision 19

SS-PFT-TX- 1002, "Performance functional test valve monitoring program," Revision 2

Modifications Packages

DCN 2796 (MR-FC-96-013), “Snubber Upgrades”
EC 11239 (MR-FC-95-003), “Replace Bad Actor Relays for DG-1& DG-2"
EC 11260 (MR-FC-95-024), “Steam Trap on FW-10 Steam Chest”
EC 11296 (MR-FC-97-021), “Diesel Generator Tach. Loop Isolation”
EC 13583 (ECN-96-048), “Diesel Generator Lube Oil Low Temperature Alarm”
EC 13584 (ECN-96-049), “Diesel Generator Starting Air Relief Valves”
EC 13915 (ECN-97-135), “Remove Expanded Metal Cage Around FW-10"
EC 13953 (ECN-97-196), “Revise Engine Mounting on Diesel Engine FW-56"
EC 14002 (ECN-97-321), “Replacement of FW-56 Fuel Shutoff Solenoid”
EC 14994, (DCN 10282), “FW-10 Reliability Enhancements”
EC 14992, “FW-10 Reliability Enhancements,” Revision 10
ECN 93214, “SGBP System Isolation Mechanical,” Revision 0
EC 14994, “FW-10 Reliability Enhancements,” Revision 0

Temporary Modification Package

EC 15045 (DCP 10375/ DCN 10333), “Place FW-10 throttle valve positioner YC-1039-2 in bypass so it can be removed and rebuilt without taking FW-10 out of service,” Approved June, 12, 2000

Surveillance Tests:

IC-ST-DG-0017, Calibration of Emergency Diesel No. 1 Auxiliary Fuel Oil Day Tank Level Control and Alarm, dated December 27, 2001

IC-ST-DG-0057, Calibration of Emergency Diesel No. 2 Auxiliary Fuel Oil Day Tank Level Control and Alarm, dated February 6, 2002

OP-PM-AFW-0004,”Third Auxiliary Feedwater Pump Operability Verification,“ Revision 12, Performed January 21, 1998

OP-ST-ESF-0002, Diesel Generator No. 1 and No. 2 Auto Operation, dated April 16, 2001, October 27, 1999, and May 3, 1998

OP-ST-ESF-0006, Engineered Safety Features Off-Site Power Low Signal (OPLS) Function Test, dated April 7, 2001, October 28, 1999, and May 4, 1998

OP-ST-ESF-0022, S1-2 Automatic Load Sequencer Test, dated December 27, 2001, October 4, 2001, July 12, 2001 and April 23, 2001

OP-ST-ESF-0023, S2-2 Automatic Load Sequencer Test, dated February 25, 2002, November 29, 2001, September 5, 2001, and June 13, 2001

OP-ST-SHIFT-0001, Operations Technical Specification Shift Surveillance, for December 2001, January 2002, and February 2002

10 CFR 50.59 Evaluations Associated with the Following Documents

Design Change Notice DCN-10235, "RC-3A L. O. Cooler CCW Supply Piping Replacement," April 25, 2000

Design Change Notice DCN-10271, "M22 Penetration Inside Containment Manual Valve," July 24, 2000

Design Change Notice DCN-10282, "FW-10 Reliability Enhancements," July 27, 2000

Engineering Change EC-14643, "CCWA Corrosion Monitor," February 18, 1998

Engineering Change EC-25423, "Temporary Air Supply to FCV-1904 A/B/C," September 6, 2000

Engineering Change EC-25851, Pressurizer Temperature Nozzle Leak Repair," October 26, 2000

Engineering Change EC-25898, Pressurizer TE-107 Mechanical Nozzle Seal Assembly," October 30, 2000

Engineering Change EC-26581, "Component Cooling Water System Drain Down and Refill," March 8, 2001

Engineering Change EC-27317, "Install a Second Isolation Valve on the Sample Line of Each Safety Injection Tank," April 26, 2001

Engineering Change EC-27083, "UT Void Detection for LPSI Injection Lines," April 12, 2001

Engineering Change EC-28349, "Install Restraint on IA Piping to HCV-1041A Actuator," August 28, 2001

10 CFR 5.59 Screenings Associated with the Following Documents

Procedure OP-ST-FO-3001 (EC-28451), “Diesel Generator 1 Fuel Oil System Pump Inservice Test,” September 20, 2001

Procedure OP-ST-AFW-0001 (EC-29137), “Aux FW System Valve Alignment Check,” January 17, 2002

Procedure OI-EE-3 (EC-28171), “125 VDC System Normal Operation,” August 30, 2001

Procedure OI-AFW-4 (EC-28785), “Aux FW Startup and System Operation,” November 15, 2001

Procedure EOP-00 (EC-25657), “Standard Post Trip Actions,” September 20, 2001

Procedure PE-ST-VX-3001 (EC-27830), “ASME Section XI Code Relief Valve Test for the CCW System,” June 26, 2001

Procedure OI-CH-3 (EC-28724), “Chemical and Volume Control System Normal Operation of VCT,” November 15, 2001

Procedure OI-MS-1A (EC-27987), “Main Steam System Operation,” July 31, 2001

Procedure OI-RM-1 (EC-14940), “Radiation Monitoring,” December 7, 2001

Procedure IC-ST-RPS-0010 (EC-27565), “Quarterly Function Test of Low Flow Reactor Coolant Trip Units,” June 7, 2001

Calculation FC 03382, “Diesel Generator LOCA Loads ETS-2.08N-L1,” January 16, 2002

Purchase Order

PO S042950: From Morrison Kundsen Co. Inc., 1989 (Air relay valves)

Work Orders

19232, completed May 21, 1999
70415, completed October 6, 2000
83895, competed May 30, 2001
103960, completed December 13, 2001

Work Request

39332, “Troubleshoot D2 air relay valve, leaks during engine start,” October 17, 2001

Licensee Event Reports

1997-004, “Diesel Generator Outside of Design Basic Due to a Violation of Appendix R,” Revision 1

1998-005, “Emergency Diesel Generator Start Due to Failure of one of the Off Site Power Sources,” Revision 0

1998-008, “Over Pressurization of Auxiliary Feedwater Piping Due to Misadjustment of Governor,” Revision 0

1999-001,”Shutdown Technical Specification Entry Due to Auxiliary Feedwater Inoperability,” Revision 0

Quality Surveillance Observations

070, 03/08/01	194, 04/29/01	414, 10/29/01	475, 11/29/01
083, 03/15/01	254, 06/21/01	472, 11/29/01	604, 12/27/01
184, 04/27/01	342, 09/13/01		