



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

April 23, 2001

John T. Herron, Vice President
Operations - Waterford 3
Entergy Operations, Inc.
17265 River Road
Killona, Louisiana 70066-0751

SUBJECT: WATERFORD 3 - NRC INSPECTION REPORT 50-382/00-13

Dear Mr. Herron:

On March 31, 2001, the NRC completed an inspection at your Waterford Steam Electric Station, Unit 3 for the period December 31, 2000, through March 31, 2001. The enclosed integrated inspection report documents the inspection findings of:

- The engineering and maintenance inspectors, which were discussed on January 25, 2001, with Mr. Charles M. Dugger, then-Vice President, Operations, and other members of your staff. A supplemental exit meeting was conducted by telephone on February 8, 2001, with Mr. B. Allen, Engineering Director, and other members of your staff.
- A radiation specialist inspector, which was discussed on March 16, 2001, with Mr. E. Ewing, General Manager, Plant Operations, and other members of your staff.
- The resident inspectors, which were discussed on April 3, 2001, with you and other members of your staff.

These inspections 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 inspections consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of these inspections, one issue related to the failure of the inside and outside containment isolation valves in the primary sampling system to stroke to the closed position following completion of a pressurizer degassing operation was evaluated under the Significance Determination Process and was determined to be of very low safety significance (Green). The NRC has also determined that one violation of NRC requirements occurred by the failure to report a condition outside design-basis involving the main steam isolation valves. This violation is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy. The noncited violation is described in the subject inspection report. If you contest the violation or significance of the noncited violation, 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

Entergy Operations, Inc.

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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 Waterford Steam Electric Station, Unit 3 facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made 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/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

William B. Jones, Chief
Project Branch E
Division of Reactor Projects

Docket: 50-382
License: NPF-38

Enclosure:
NRC Inspection Report
50-382/00-13

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No: 50-382

License No: NPF-38

Report No: 50-382/00-13

Licensee: Entergy Operations, Inc.

Facility: Waterford Steam Electric Station, Unit 3

Location: Hwy. 18
Killona, Louisiana

Dates: December 31, 2000, through March 31, 2001

Inspectors: T. R. Farnholtz, Senior Resident Inspector
J. M. Keeton, Resident Inspector
G. A. Pick, Senior Project Engineer, Project Branch E
J. F. Melfi, Project Engineer, Project Branch E
M. F. Runyan, Senior Reactor Inspector
J. E. Whittemore, Senior Reactor Inspector
R. W. Deese, Reactor Inspector
L. T. Ricketson, Radiation Specialist

Accompanying
Personnel: J. L. Taylor, Reactor Inspector

Approved By: W. B. Jones, Chief, Project Branch E
Division of Reactor Projects

ATTACHMENT: Supplemental Information

SUMMARY OF FINDINGS

IR05000382-00-13; on 12/31/00-03/31/01; Entergy Operations, Inc.; Waterford Steam Electric Station; Unit 3; Integrated Resident & Regional Report; Evaluation of Changes, Tests or Experiments; Identification and Resolution of Problems.

The report covers a 3-month period of routine resident inspection, an engineering and maintenance inspection, and a radiation protection inspection. The inspections identified one noncited violation (No Color) and one Green finding. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using IMC 0609 "Significance Determination Process" (SDP). Findings for which the SDP 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>. Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation.

Inspector Identified Findings

Cornerstone: Mitigating Systems

- In July 1998, the licensee failed to report to the NRC the discovery of a condition outside of the design-basis of the plant, as required by 10 CFR 50.73. After correcting errors in previous analyses, the licensee found that the main steam isolation valves (both Trains A and B) may not have closed during an accident within the design-basis specified time of 4.0 seconds. The closure time could have been as high as 6.1 seconds. Although the licensee determined that no safety limits were challenged, the condition exceeded the design-basis of the plant and should have been reported to the NRC. This was determined to be a violation of 10 CFR 50.73(a)(2)(ii)(B).

This nonconforming condition was of low safety significance because new analyses showed that the longer stroke closure time would not have an adverse impact on the results or consequences of all affected accident analyses. Consequently, the violation of 10 CFR 50.73(a)(2)(ii)(B) identified above is categorized at Severity Level IV and is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This violation (50-382/0013-01) was entered into the licensee's corrective action program as Condition Report 2001-0171 (Section 1R02).

Cornerstone: Barrier Integrity

- Green. The inside and outside containment isolation valves in the primary sampling system failed to stroke to the closed position following completion of a pressurizer degassing operation. Maintenance on both valves had been performed during the last scheduled refueling outage, which introduced a common mode failure mechanism in the same containment penetration. The initial response to these failures was not timely and focused on the valve actuators rather than the actual cause of the failure, which was thermal binding of the valve internals. This issue was entered in the licensee's corrective action program as Condition Report 2001-118.

This issue was assessed using the reactor safety SDP. The inspectors found that the issue had very low safety significance because the containment penetration was small in diameter ($\frac{1}{2}$ -inch) and the licensee successfully isolated the penetration manually as required by Technical Specifications (Section 40A2).

Report Details

Summary of Plant Status: At the beginning of this inspection period, the plant was at full power. The plant remained at that power until February 13, 2001, when operators reduced power to 67 percent in response to a failure of a speed controller on a steam generator feedwater pump. After repairs had been made, operators increased power to 82 percent to perform main turbine governor valve testing. During this testing, the plant tripped because of a failure in the testing circuitry. On February 15, operators restarted and returned the plant to full power. The plant remained at full power for the remainder of this inspection period.

1 REACTOR SAFETY

Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness

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

a. Inspection Scope

The inspectors reviewed 10 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.

The inspectors reviewed 11 safety evaluation screenings, in which the licensee determined that safety evaluations were not required, to ensure that excluding a full evaluation was consistent with the requirements of 10 CFR 50.59.

The inspectors reviewed action requests and other related documents that addressed problems or deficiencies associated with 10 CFR 50.59 to ensure that appropriate corrective actions were being taken.

b. Findings

The inspectors reviewed Safety Evaluation 00-069, which evaluated Engineering Reports ER-W3-00-0890-00-00, "MSIV Design-Basis," and ER-W3-00-0890-01-00, "MSIV Tech Spec Bases and TRM Changes." The licensee determined that the Train A and B main steam isolation valves would not be able to close within the design-basis time of 4.0 seconds under worst-case differential pressure and flow conditions. The actual closure time could have been as high as 6.1 seconds, considering the single failure of one dump valve to open. This discrepancy occurred because the original analysis assumed a disc-to-seat friction factor that was nonconservative and did not properly correlate valve speed to nitrogen dome pressure (nitrogen pressure is the motive force in closing the valve).

Engineering Report ER-W3-00-0890-00-00 documented a change in the main steam isolation valve design-basis closure time from 4 to 7 seconds. This change was supported by a new analysis showing that this longer valve closure time would not have an adverse impact on the results or consequences of all affected accident analyses. The licensee determined that an unreviewed safety question did not exist and processed the change under 10 CFR 50.59.

The inspectors agreed with the licensee that an unreviewed safety question did not exist; however, the inspectors concluded that the licensee failed to report the condition as required by the then-existing regulation under 10 CFR 50.73. The condition was first discussed in Condition Report 1998-1033, dated July 31, 1998. At this time, 10 CFR 50.73(a)(2)(ii)(B) required licensees to report any event or condition that resulted in the nuclear power plant being in a condition that was outside of the design-basis of the plant. In this instance, the main steam isolation valves were clearly outside of their design-basis. The licensee asserted in its reportability evaluation that because the revised analysis showed that no safety concerns would result from the as-found condition it was not reportable. The inspectors determined that this reasoning was not valid and that a violation of 10 CFR 50.73(a)(2)(ii)(B) existed. The intent of the regulation was to report conditions outside of the design-basis regardless of the ultimate impact on the accident analysis.

Based on the very low safety significance of the nonconforming main steam isolation valves, the violation of 10 CFR 50.73(a)(2)(ii)(B) identified above is categorized at Severity Level IV and is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This violation (50-382/0013-01) was entered into the licensee's corrective action program as Condition Report 2001-0171.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

The inspectors reviewed the following system alignments during this quarter:

- Component Cooling Water and Auxiliary Component Cooling Water A: On January 30, 2001, the inspectors reviewed the mechanical and electrical alignments of the Train A equipment, which were aligned in standby while Train B equipment was out of service for routine preventive maintenance. The inspectors verified alignment of critical portions of the system using Procedures OP-002-001, "Auxiliary Component Cooling Water," Revision 12, and OP-002-003, "Component Cooling Water System," Revision 12.
- Containment Fan Coolers B and D: On February 12, 2001, the inspectors verified the mechanical and electrical alignments of the operating equipment, while Containment Fan Coolers A and C were out of service for routine preventive maintenance. The inspectors verified alignment of critical portions of the system using Procedure OP-008-003, "Containment Cooling System," Revision 5.
- Auxiliary Component Cooling Water Train A: On March 7, 2001, the inspectors walked down the system at a time when Train B was inoperable for scheduled maintenance. The inspectors verified alignment of critical portions of the system using Procedure OP-002-001, "Auxiliary Component Cooling Water," Revision 12.

- Boration Flow Paths: On March 15, 2001, the inspectors reviewed the mechanical and electrical alignment required by Technical Specifications after operators had removed both boric acid pumps from service for routine preventive maintenance. The inspectors verified alignment of critical portions of the system using Procedure OP-002-005, "Chemical and Volume Control," Revision 15.
- Containment Penetrations: From February 7-21, 2001, the inspectors performed a complete walkdown of the reactor building containment penetrations and verified that the mechanical and electrical alignments met the Final Safety Analysis Report (FSAR) and Technical Specification requirements for containment integrity. The inspectors verified alignment of the systems using Procedure OP-903-031, "Containment Integrity Check," Revision 9.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors conducted tours, assessed the material condition of the active and manual fire detection and suppression systems, and verified that combustible materials were appropriately controlled in the following areas:

- Emergency switchgear rooms, dry cooling towers, and fuel handling building on January 8, 2001
- Reactor Auxiliary Building +21-, -4-, and -35-foot elevations on January 30, 2001
- Cable spreading rooms and main steam isolation valve areas on February 8, 2001
- Reactor Auxiliary Building -35-foot elevation including the charging pump rooms, the motor driven emergency feedwater pump rooms, and the steam-driven emergency feedwater pump area on March 2, 2001
- Reactor Auxiliary Building +21-foot elevation including the hot machine shop and emergency diesel generator rooms on March 14, 2001
- Security diesel generator room and the diesel-driven and motor-driven fire pump rooms on March 30, 2001

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

This inspection looked for potential heat exchanger deficiencies, which could mask degraded performance, and evaluated the potential for common cause heat sink performance problems, which have the potential to increase risk at the Waterford Steam Electric Station, Unit 3. The inspectors selected the following heat sinks and heat exchangers because their associated risk achievement worths ranked high in the plant risk assessment:

- Component Cooling Water Heat Exchangers
- Dry Cooling Towers
- Wet Cooling Towers

.1 Performance of Testing, Maintenance, and Inspection Activities

a. Inspection Scope

The inspectors reviewed the test methodology for the selected heat sinks/exchangers. Specifically, the inspectors critiqued the test method and test conditions contained in Procedures PE-004-021, "Component Cooling Water (CCW) Heat Exchanger Performance Test," Revision 1; PE-004-033, "Wet Cooling Tower Thermal Performance Test," Revision 0; and PE-004-024, "Auxiliary Component Cooling Water (ACCW) and CCW System Flow Balance," Revision 1, Change 2.

The inspectors also reviewed the test results. Specifically, the inspectors verified proper extrapolation of test conditions to design conditions, appropriate test instrumentation used, and appropriate accounting for instrument inaccuracies. Additionally, the inspectors verified that the licensee appropriately trended these test results, assessed the causes of the trends, and took necessary actions for any step changes in these trends.

The inspectors also verified that chemical treatments and methods used to control biotic fouling for the ACCW and CCW systems were sufficient to ensure effective heat exchanger and heat sink performance.

b. Findings

No findings of significance were identified.

.2 Verification of Conditions and Operations Consistent with Design Bases

a. Inspection Scope

The inspectors verified that the licensee established heat sink and heat exchanger test criteria consistent with the design bases. Specifically, the inspectors reviewed the applicable design-basis calculations to ensure that the thermal performance test acceptance criteria for the wet cooling towers and CCW heat exchangers were being applied consistently throughout the calculations. The inspectors also verified that the

appropriate acceptance values for fouling and tube plugging for the CCW heat exchanger remained consistent with the values used in the design-basis calculations. Finally, the inspectors verified that parameters measured during the thermal performance and flow balance tests for the ACCW and CCW systems were consistent with those assumed in the design bases.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors examined the corrective action program for significant problems with the selected components over the past 2 years. The inspectors discovered three potential issues related to common cause failures that could lead to degraded heat sink or heat exchanger performance.

The first issue dealt with the numerous amounts of electrical problems reported against the dry cooling tower fans, whose function is essential to the prescribed dry cooling tower performance. A second issue dealt with the problems encountered with flow balancing in the CCW system during the last outage, whose ramifications could affect the heat balance of the system. The third issue dealt with the excessive corrosion of the wet cooling tower fan motors, whose function ensures proper wet cooling tower performance.

The inspectors used Inspection Procedure 71152, "Identification and Resolution of Problems," as a guide for reviewing these issues and subsequently verified that the licensee took appropriate actions to prevent recurrence of these problems.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

On January 30, 2001, the inspectors observed the conduct of a simulator scenario for two shift crews as part of routine requalification training. In addition, the inspectors observed a self-critique session conducted following the completion of the simulator scenario.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

.1 Maintenance Rule Unavailability Review of Essential Chillers

a. Inspection Scope

The inspectors reviewed the historical unavailability hours for Trains A, B, and AB of the essential chillers since January 1999. The inspectors also discussed this data with the lead engineer assigned to these chillers. The essential chillers were included in Category (a)(1) of the Maintenance Rule.

b. Findings

No findings of significance were identified.

.2 Maintenance Rule Unavailability Review for Ultimate Heat Sink B

a. Inspection Scope

From January 30 through February 5, 2001, the inspectors reviewed the ultimate heat sink systems during a work week maintenance outage to determine if the Maintenance Rule scoping and application of unavailability hours for this system had been appropriate. The inspectors reviewed the FSAR; Procedures UNT-006-029, "The Maintenance Rule," Revision 2; W2.502, "Configuration Risk Management Program Implementation," Revision 0; and Engineering Guide 459020100, "Maintenance Rule Guideline," Revision 2, to verify that the licensee appropriately accounted for availability of the system.

b. Findings

No findings of significance were identified.

.3 Maintenance Rule for the Primary Sampling System

a. Inspection Scope

On February 28, 2001, the inspectors completed a review of the primary sampling system and the containment building as they related to the Maintenance Rule. The licensee experienced some problems with the containment isolation valves in the primary sampling system when air-operated valves of similar design failed to operate as required and precluded the taking of primary samples for a period of time. The inspectors reviewed the Maintenance Rule reliability criteria for these systems and interviewed plant personnel to ensure that the Maintenance Rule aspect of these issues was adequately addressed.

b. Findings

No findings of significance were identified.

.4 Maintenance Rule Status and Risk Evaluation Associated with the Stator Cooling Water System Chemical Cleaning

a. Inspection Scope

During the weeks of March 12 and 19, 2001, the inspectors reviewed and evaluated the stator cooling water chemical cleaning plan to determine if the appropriate consideration had been given to risk of event initiation caused by inadvertent generator trip. The inspectors also verified the appropriateness of the system scoping. The inspectors reviewed the FSAR; Procedures UNT-006-029 and W2.502; and Engineering Guide 459020100, to verify that the availability of the system was being appropriately treated.

b. Findings

No findings of significance were identified.

.5 Effectiveness of Current Maintenance Rule Program Activities

a. Inspection Scope

The inspectors determined the requirements of the Maintenance Rule Program through a review of Procedure UNT 006-029 and Engineering Guide 459020100. These documents implemented the requirements 10 CFR 50.65 at Waterford 3.

The inspectors reviewed condition reports, maintenance preventable functional failure determinations, and Category (a)(1) recovery plans that were generated in response to requirements of the Maintenance Rule Program. The items sampled were for issues associated with Maintenance Rule functions of structures, systems, and components associated with the ACCW system, essential chilled water chillers, control room envelope, diesel generator sequencer system, and toxic gas monitoring system. For the identified systems and related functions, the inspectors followed up by obtaining the associated documentation and assessing the Maintenance Rule Program performance related to:

- Adequacy of cause determination of degraded performance or failure to meet performance criteria
- Adequacy of corrective action and goal setting
- Adequacy of established goals and subsequent monitoring of functions placed in Category (a)(1)
- Adequacy of program revisions related to scoping, risk-significance, performance criteria, and monitoring of the subject structures, systems, and components
- The creation of new risk-significant functions to improve performance monitoring

In addition, the inspectors conducted interviews with the engineering and maintenance personnel to gain an understanding of actions taken with regard to specific issues.

b. Findings

No findings of significance were identified.

.6 Periodic Assessment Reviews

a. Inspection Scope

The inspectors reviewed the reports documenting the performance of the last two Maintenance Rule periodic assessments. The licensee conducted these periodic assessments to meet the requirements of 10 CFR 50.65(a)(3). The assessments covered the periods of the program implementation from July 10, 1996, through September 30, 1997, and from October 1, 1997, through April 6, 1999.

The inspectors evaluated whether the reports contained adequate assessment of the performance of the Maintenance Rule Program as well as conformance with applicable programmatic and regulatory requirements. To accomplish this, the inspectors verified that the licensee appropriately and correctly addressed the following attributes in the assessment reports:

- The program treatment of nonrisk-significant structure, system, and component functions monitored against plant level performance criteria
- Program adjustments made in response to unbalanced reliability and availability
- The application of industry operating experience
- Performance review of Category (a)(1) systems
- Evaluation of the bases for system category status change (e.g., (a)(1) to (a)(2) or (a)(2) to (a)(1))
- Effectiveness of performance and condition monitoring at component, train, system, and plant levels

The inspector also verified that the issuance of the two most recent assessments met the regulatory timeliness requirements.

b. Findings

No findings of significance were identified.

.7 Identification and Resolution of Problems

a. Inspection Scope

Through the review and examination of condition reports, system engineering checklists, root cause analyses, and Category (a)(1) recovery plans listed in the attachment, the inspectors evaluated the use of the corrective action program as it pertained to the Maintenance Rule Program. In addition, the inspectors interviewed system engineers to gain understanding of the engineers' performance in relation to specific issues or problems. The inspectors conducted this review to identify whether the corrective action program was entered at the appropriate threshold and effectively utilized for the purposes of:

- Starting the cause evaluation and determination of appropriate corrective action when performance criteria or condition limits were exceeded
- Identifying and correcting performance-related issues or conditions identified during the periodic assessment
- Identifying and correcting specific and common issues or conditions brought to light through activities such as performance trending or data analysis

The inspectors verified that the licensee appropriately identified issues and implemented corrective actions in support of the Maintenance Rule Program. The inspectors further verified that the corrective action program was identifying programmatic Maintenance Rule issues because of the deliberate program integration with the programs for trending analysis and performance indicators.

b. Findings

No findings of significance were identified.

.8 Reactor Coolant System Integrity

a. Inspection Scope

The inspectors verified proper implementation of the Maintenance Rule process that assessed the effectiveness of maintenance efforts. This included verification of structure and component scope, characterization, safety significance, performance criteria, and the appropriateness of goals and corrective actions. Specifically, the inspectors reviewed application of the Maintenance Rule for the reactor coolant system integrity. The inspectors also reviewed licensee assessments of the reactor coolant system Inconel 600 nozzle pressure boundary leakage described in Condition Reports 1999-0204, -0232, and -0234, and 2000-1250 and -1265. The licensee identified the failures as functional failures but concluded the failures resulted from material selection deficiencies and not poor maintenance.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)

.1 Safeguards Room A Air Handling Unit Fan Motor

a. Inspection Scope

On January 26, 2001, the inspectors completed a review of Maintenance Action Items 410945, 423229, 423380, and 424008, and Condition Report 2001-0093. The licensee had written these documents against the Safeguards Room A air handling unit fan motor since October 1999. The inspectors evaluated these documents and interviewed component engineers. The inspectors questioned whether and concluded that the licensee inappropriately addressed early indications of a loose motor cooling fan.

b. Findings

No findings of significance were identified.

.2 Emergent Work Control for Primary Sample Valves

a. Inspection Scope

On January 28, 2001, Primary Sample Valves PSL-303 and -304 failed to close during normal operating conditions. The inspectors reviewed the activities associated with troubleshooting, repairing, and testing of these valves because they were the inside and outside containment isolation valves for a containment penetration. The inspectors expressed concern that failure of these valves constituted a previously unidentified common mode failure. The inspectors interviewed the operators and engineers to determine if the activity risk had been appropriately considered. The inspectors verified that the appropriate assessments had been completed and verified that appropriate equipment alignments had been maintained to comply with Technical Specification requirements. On February 21, these valves failed the postmaintenance retest and the licensee formed a Significant Event Review Team to determine the cause of the failure. Additional information is presented in the Problem Identification and Resolution Section (Section 4OA2) of this report because of a timeliness issue to address the common mode failure issue.

b. Findings

No findings of significance were identified.

.3 Scheduled Maintenance to Replace Control Switch Knob on Control Panel CP-8

a. Inspection Scope

On January 30, 2001, the inspectors reviewed the plan that replaced the control switch knob for Train B components in accordance with Maintenance Action Item 414257. Although the switch operated components in the designated work week train, the switch was physically located on the protected train (Train A) side of the panel. The inspectors interviewed the operators to determine if the activity risk had been appropriately considered. Following those discussions, the inspectors verified that the appropriate assessments had been conducted and determined that the licensee had rescheduled the activity to be worked during the appropriate train work week.

b. Findings

No findings of significance were identified.

.4 Switchyard Battery Replacement

a. Inspection Scope

On January 31, 2001, the inspectors reviewed the scope of work planned to replace one of the two switchyard batteries used to control the oil circuit breakers. Also, the inspectors interviewed the engineer in charge of the work and observed work in progress to ensure that control of work in the switchyard was conducted as required.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions (71111.14)

a. Inspection Scope

On February 13, 2001, with the plant at 100 percent power, the Steam Generator Feedwater Pump A speed controller failed and the pump slowed to minimum speed. The inspectors observed the operators perform the required power reduction to less than 70 percent. The inspectors reviewed the operator logs, plant computer data, and charts of key parameters, and assessed the plant and operator response to the evolution. The inspectors also reviewed Procedure OP-901-201, "Steam Generator Level Control Malfunction," Revision 2, to verify that the operator responded in accordance with the procedure requirements.

After the speed controller had been repaired, operators increased power to 82 percent to perform main turbine valve testing. Operators conducted the turbine valve testing in accordance with Procedure OP-903-007, "Turbine Inlet Valve Cycling Test," Revision 9. During the testing, a reactor trip occurred because of a failure in the test circuitry.

The inspectors responded to the reactor trip and verified plant parameters and plant status. The inspectors evaluated the performance of mitigating systems and operator actions to confirm that the event was properly classified, appropriate emergency procedures were entered, and timely notifications were made. The inspectors communicated details of the trip to the appropriate Region IV personnel.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the operability evaluations for the following:

- Wet Cooling Tower B Wall Crack: The inspectors reviewed Condition Report 2001-0018 on January 11, 2001. The operability evaluation addressed two issues: (1) a seepage rate of 5 gallons per hour, continued operation was allowed after verifying that sufficient cooling water remained available to compensate for the leak, and (2) existing cracks in the concrete wall had been evaluated and determined that a structural or seismic concern did not exist. The cracks in the concrete material were verified to be tracked in the basemat monitoring program.
- Failed Lifting Device for Letdown Purification Filter: The inspectors reviewed Condition Report 2001-0222 on February 16, 2001. The operability evaluation addressed a condition where a lifting device failed while being used to support a spent letdown system purification filter. The inspectors considered the operability evaluation complete in that it addressed possible system/component damage and radiological and personnel safety issues. The licensee maintained the spent filter remained in a safe condition and later retrieved it.
- High-Pressure Safety Injection System Valve Leakage: The inspectors reviewed Condition Report 2001-0237 on February 23, 2001. The operability evaluation described a condition in which High-Pressure Safety Injection Pump A/B suction and/or discharge cross connect isolation valves appeared to leak when in the closed position. These valves were closed and tagged to allow maintenance of the high-pressure safety injection pump. The apparent seat leakage resulted in a lowering of the refueling water storage pool and an inability to isolate and drain the pump piping. The refueling water storage pool remained operable because of close monitoring, which ensured prompt operator response to close the vent and drain valves.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

On February 20, 2001, the inspectors reviewed selected operator workarounds and evaluated the effects on the operators abilities to implement the required actions during routine and accident conditions. The inspectors also reviewed the cumulative effects of outstanding operator workarounds potential for causing system misoperation, degrading event mitigation capabilities, and timeliness impact on response to plant transients and accidents. The inspectors verified that the operators had been identifying workarounds in accordance with Procedure OI-002-000, "Annunciator, Control Room Instrumentation and Workarounds Status Control," Revision 18.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed postmaintenance testing activities conducted on:

- Safeguards Room A Air Handling Unit Fan Motor: On January 17, 2001, the inspectors reviewed the postmaintenance test conducted on the Safeguards Room A air handling unit fan motor following maintenance to correct a condition where the motor cooling fan was loose. The postmaintenance test was conducted in accordance with Maintenance Action Item 424008.
- Primary Sample Valves PSL-303 and -304: During the weeks of February 4 and 11, 2001, the inspectors followed the postmaintenance testing activities conducted on Containment Isolation Valves PSL-303 and -304. Corrective maintenance had been performed on these valves following failure to fully close during operation. The inspectors verified that the postmaintenance testing had been appropriately addressed by the operations and engineering personnel; the scope of the test was adequate; acceptance criteria was clear; testing had been performed as written; and test data was complete. The postmaintenance test identified that the maintenance had not been effective.
- Core Protection Calculator D: During the week of March 12, 2001, the inspectors reviewed the postmaintenance testing of Core Protection Calculator D. Corrective maintenance had been performed on this channel that had failed during operation. The inspectors verified that the postmaintenance testing had been performed as written.
- Essential Chiller A/B: During the weeks of March 19 and 26, 2001, the inspectors reviewed the postmaintenance testing activities conducted on the essential chiller following corrective maintenance and a modification that had

been performed because of a broken wire that caused the chiller to trip during operation. The inspectors verified that the postmaintenance testing had been appropriately addressed by the operations and engineering personnel; the scope of the test was adequate; acceptance criteria was clear; testing had been performed as written; and test data was complete.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed or reviewed the following:

- Control Room Emergency Filtration Unit B: On January 9, 2001, the inspectors observed setup and portions of a scheduled surveillance. Operators conducted the test in accordance with Procedure OP-903-051, "Control Room Emergency Filtration Unit," Revision 8. The inspectors also reviewed the completed data sheets and verified that the surveillance acceptance criteria had been met.
- Emergency Diesel Generator A Monthly Test: On January 22, 2001, the inspectors observed portions of the monthly surveillance. Operators conducted the test in accordance with Procedure OP-903-068, "Emergency Diesel Generator and Subgroup Relay Operability Verification," Revision 12.
- Monthly Containment Penetration Checks: On February 5, 2001, the inspectors reviewed Technical Specification required surveillances to verify that they had been appropriately conducted in accordance with Technical Specifications and Procedure OP-903-031, "Containment Integrity Check," Revision 9.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

From February 7-22, 2001, the inspectors reviewed outstanding temporary alterations to verify that risk-significant systems had not been affected, and that temporary alteration packages had received appropriate reviews to determine effects on safety-related systems. The inspectors verified that temporary alterations had been performed in accordance with Procedure UNT-005-004, "Temporary Alteration Control," Revision 14, and the appropriate work instructions.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On March 6, 2001, the licensee conducted a tabletop emergency plan drill for the purposes of exercising the emergency planning organization and to provide an opportunity to coach the participants. The inspectors reviewed the drill scenario and the critique notes from various drill coordinators/observers and interviewed the emergency planning manager to determine the effectiveness of the exercise.

b. Findings

No findings of significance were identified.

2 RADIATION SAFETY

Occupational Radiation Safety

2OS3 Radiation Monitoring Instrumentation (71121.03)

a. Inspection Scope

The inspector interviewed cognizant licensee personnel and compared the following items to regulatory requirements:

- Calibration, operability, and alarm setpoint, when applicable, of selected area radiation monitors, continuous air monitors, containment high range monitor, main steam line monitor, whole-body counting equipment, electronic alarming dosimeters, and personnel contamination monitors
- Calibration expiration and source response check currency on radiation detection instruments staged for use
- The status of self-contained breathing apparatuses staged and ready for use in the plant and surveillance records of such equipment
- The capability for refilling and transporting self-contained breathing apparatus air bottles to and from the control room and operations support center during emergency conditions
- Control room operator and emergency response personnel training and qualifications for use of self-contained breathing apparatus

- Licensee self-assessments and sections of audits (SA-98-018.1, SA-99-009.1, QA-14-2000-W3-1) that focused on radiological monitoring instruments and self-contained breathing apparatus
- Selected condition reports that involved radiation monitoring instrument deficiencies or self-contained breathing apparatuses since March 12, 1999

b. Findings

No findings of significance were identified.

4 OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed the performance indicator data for the fourth quarter 2000 for:

- Reactor Coolant System Identified Leak Rate: The inspectors performed this review on February 5, 2001. This performance indicator is included in the barrier integrity cornerstone.
- Reactor Coolant System Activity: The inspectors performed this review on March 9, 2001. This performance indicator is included in the barrier cornerstone.

b. Findings

No issues of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

a. Inspection Scope

The inspectors reviewed the circumstances surrounding the failure of Primary Sample Valves PSL-303 and -304. These are the inside (PSL-303) and outside (PSL-304) containment isolation valves for the primary sampling system from the pressurizer steam space. Both of these valves failed to close following a pressurizer degassing operation on January 28, 2001. These valves close and isolate this containment penetration on a containment isolation signal.

b. Findings

On January 28, 2001, the licensee degassed the reactor coolant system pressurizer in an attempt to remove noncondensable gasses from the steam space. Personnel used the primary sampling system by establishing flow through the containment penetration containing Primary Sample Valves PSL-303 and -304. Upon completion, operators

attempted to close these valves using the control switch on the main control board. Neither valve closed and flow through the penetration continued. Operators deenergized, manually closed, and gagged Valve PSL-304 to isolate the penetration and complied with the appropriate Technical Specification action statements. Operators initiated Condition Report 2001-118 to enter this event into the corrective action program.

Containment Isolation Valves PSL-303 and -304 are air-operated, ½-inch, Model 70-18-9 DRTS valves manufactured by WKM. These valves consist of a plug connected to the stem and captured by a cage to maintain alignment of the assembly.

The licensee identified the probable cause as insufficient spring force of the valve actuator in the close direction. Craft personnel adjusted the closing spring force on Valve PSL-303 and replaced the spring, diaphragm, and seals on Valve PSL-304. Both valves were stroke tested satisfactorily. As a final test, the licensee established flow through the penetration from the pressurizer steam space to replicate the conditions under which the valves had failed. Again, both valves failed to close under these test conditions.

The licensee formed a Significant Event Review Team to perform a more in-depth root cause analysis and to recommend actions to return these valves to their operable condition. The licensee used a Kepner-Tregoe problem solving approach, which determined that the root cause as thermal binding between the plug and the cage in the valve assembly at the nominal operating temperatures. The licensee measured, then compared the clearance between these parts to the manufacturers tolerance of 0.002 to 0.006 inches. The licensee found the diametrical clearances for both valves outside of the manufacturers specifications, with Valve PSL-303 at 0.0005 to 0.0025 inches and Valve PSL-304 at 0.0015 to 0.0025 inches. In addition, in both cases, the cage inside diameter was found to be outside the manufacturers tolerances. Visual inspection of the valve internal parts revealed indications consistent with galling.

The licensee replaced the valve internals and reassembled the valves. The licensee stroked the valves and performed a flow test to again replicate the conditions of the previous failures. The valves operated as expected and stroked to the full closed position. The containment penetration was declared operable. After a review of the licensee actions and findings, the manufacturer generated a 10 CFR Part 21 report to alert the industry of potential thermal binding.

A review of the history of these two valves revealed that problems with Valve PSL-304 began as early as 1988 and with Valve PSL-303 in 1989. These problems included failure to close, exceeding the in-service test stroke time limit, position indication problems, and seat leakage. The licensee performed extensive work on both these valves during the last refueling outage, which included replacing the valve internals. The inspectors considered this to be significant because it appeared that a common mode failure mechanism had been introduced in both the inside and outside containment isolation valves in the same penetration without adequate testing that would reveal this potential problem.

The inspectors expressed concern that the initial response following the January 28, 2001, failures were less than rigorous. When the failures occurred, the inspectors were primarily concerned about the possibility of a common mode failure mechanism in the same containment penetration. The response from the licensee was not timely and did not consider the extent of this condition to the degree expected. Initial efforts were focused on the valve actuators without due regard for the valves themselves. It was not until the second set of failures on February 21 (3½ weeks later) that the Significant Event Review Team was established and the actual root cause was determined.

The inspectors used the guidance contained in NRC Inspection Manual 0610* and the Significance Determination Process (SDP) to determine the safety significance of this issue. It was determined that this issue did represent a credible impact on safety (Group 1 question) and affected the integrity of the reactor containment (Group 2 question) because both the inside and outside containment isolation valves in the same containment penetration failing to close, as required. It was determined that this condition affected the barrier integrity cornerstone and represented a degraded containment barrier.

This issue was assessed using the reactor safety SDP. The inspectors found that the issue had very low safety significance because the containment penetration was small in diameter (½-inch), the containment penetration was open for only a short period and the licensee successfully isolated the penetration manually as required by Technical Specifications.

4OA3 Event Follow up (71153)

.1 Follow up to Reactor Trip

a. Inspection Scope

On February 13, 2001, while conducting main turbine governor valve testing, the plant tripped because of a failure in the valve testing circuitry. The inspectors evaluated this event to ensure that plant equipment performed as expected and the plant responded appropriately. In addition, the inspectors observed troubleshooting and repair efforts performed to return plant equipment to operable status.

b. Findings

No findings of significance were identified.

.2 Licensee Event Report Reviews

a. Inspection Scope

The inspectors reviewed the following licensee event reports that had minor significance to determine: (1) the risk significance of the issue using the SDP; (2) whether the licensee placed the issue in the corrective action program; and (3) whether any enforcement would be necessary. The inspectors determined that the licensee had

identified each of the issues, that the findings involved had very low risk/safety significance, and that any violations were minor violations.

- (Closed) Licensee Event Report 50-382/98-019-00 and -01: Failure of Containment Isolation Valves to Close During Testing Because of Solenoid Valves

The licensee performed a root cause analysis and documented this event in Condition Report 1998-1246.

- (Closed) Licensee Event Report 50-382/99-001-00: Technical Specification 3.0.3 Entry Because of Less Than Adequate Chiller Thermostat Control

The licensee performed a root cause analysis and documented this event in Condition Report 1999-0007.

- (Closed) Licensee Event Report 50-382/99-002-00: Leaking Reactor Coolant System Pressure Boundary Nozzles

The licensee performed a root cause analysis and documented this event in Condition Report 1999-0204. The NRC had previously reviewed the immediate corrective actions that repaired the identified nozzles (refer to NRC Inspection Report 50-382/99-04, Section M8.1). On March 28, 2000, the licensee described the long-term plan for correcting the Inconel 600 nozzle cracking (Letter W3F1-2000-0007). The inspectors performed additional reviews of this issue during review of Licensee Event Report 50-382/00-011-00.

- (Closed) Licensee Event Report 50-382/99-004-00: Missed Surveillance for Engineered Safety Features Actuation Signal Containment Cooling Function Response Time Testing

The licensee identified this deficiency while implementing corrective actions for Condition Report 1998-0537. The licensee performed a root cause analysis and documented this event in Condition Report 1999-0501. The NRC had previously reviewed this event in NRC Inspection Report 50-382/99-09, Section E1.1.

- (Closed) Licensee Event Report 50-382/99-007-00: Operation Outside Tornado Missile Protection Licensing Basis for Turbine-Driven Emergency Feedwater (EFW) Pump and Steam Supply Piping

On June 25, 1999, inspectors determined, during closeout of a design inspection open item (refer to NRC Inspection Report 50-382/99-15, Section E8.1), that an unreviewed safety question existed. Specifically, the emergency feedwater system steam supply and exhaust piping were not protected from tornado missiles, as described in FSAR, Section 3.3. Since original construction, the FSAR had failed to describe as-built components that were not protected from tornado-generated missiles. Further, the FSAR did not describe and the

licensee had not received site-specific approval to use the TORMIS (tornado missile evaluation code) methodology. This methodology allows a licensee to determine the likelihood of tornado-generated missiles from striking unprotected components.

The licensee submitted Amendment Request 168, "Unreviewed Safety Question Regarding Design-Basis Concerning Tornado Missile," on October 29, 1999, which requested approval of the TORMIS methodology to determine, in part, that unprotected features did not require further protection based upon probability of damage. On September 7, 2000, NRC approved the license amendment request.

In accordance with NRC guidance (Enforcement Manual, Section 8.1.3), the failure of the as-built plant to match the FSAR is a "defacto 10 CFR 50.59" and resulted from a failure to properly translate design requirements for tornado missile protection of the emergency feedwater exhaust piping into the license application was a violation of 10 CFR Part 50, Appendix B, Criterion III. Specifically, the licensee failed to prescribe the TORMIS methodology in the FSAR. This failure did not result in any adverse consequences to the plant and NRC approved the TORMIS methodology, which demonstrated the design remained satisfactory. Although this issue should be corrected, it constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the Enforcement Policy.

- (Closed) Licensee Event Report 50-382/99-017-00: Failure to Perform Technical Specification Surveillance Tests On a Penetration Overcurrent Protection Device

The licensee performed a root cause analysis and documented this event in Condition Report 1999-0844.

- (Closed) Licensee Event Report 50-382/00-003-00: Shutdown In Accordance With Technical Specification 3.0.3 Because of a Cracked Weld That Rendered The Charging System Inoperable

The licensee performed a root cause analysis and documented this event in Condition Report 2000-0199. The NRC reviewed this event in Inspection Report 50-382/00-02, Section O1.1.

- (Closed) Licensee Event Report 50-382/00-004-00: Potential Degradation of Feedwater Isolation Valves Because of Design-Basis Deficiencies

The licensee performed a root cause analysis and documented this event in Condition Report 2000-0249.

- (Closed) Licensee Event Report 50-382/00-005-00: Operating in a Condition Prohibited by Technical Specification 3.6.2.2 Because of an Inoperable Containment Fan Cooler

The inspectors reviewed this licensee event report and associated Notice of Enforcement Discretion RIV-00-006 for the inoperable Containment Fan Cooler C to assess root cause and corrective actions. The licensee performed a root cause analysis and documented this event in Condition Report 2000-0394. The bearing for the fan in Containment Fan Cooler C failed, which rendered this containment fan cooler inoperable. The licensee determined that they could not replace the bearing within the Technical Specifications action statement allowed outage time.

The NRC issued Notice of Enforcement Discretion RIV-00-006 based on a pre-existing license amendment. The Technical Specification amendment demonstrated that only one (instead of two) containment fan coolers were needed for each containment fan cooler train to perform the design-basis function of lowering containment pressure. The licensee submitted a request for Notice of Enforcement Discretion that was identical to Technical Specifications amendment request previously submitted.

The licensee eventually determined that Containment Fan Cooler C failed because of inadequate bearing lubrication. The licensee did not identify a single root cause for the inadequate lubrication; however, the licensee determined that high local temperatures prevented the grease from draining away and the periodic regreasing allowed more grease to accumulate within the bearing housing, eventually causing damage. As corrective action, the licensee will replace the same bearings on the other containment fan coolers and revise their method for lubricating the bearings.

Because NRC approved the Technical Specification that only required one containment fan cooler in each train, the inspectors determined that this issue did not meet any of the Group 1 screening questions. This issue is not considered a violation but is documented because of the Notice of Enforcement Discretion and because it fits the Group 3 question as a licensee event report.

- (Closed) Licensee Event Report 50-382/00-006-00: Both Channels of Chlorine Detectors Found Outside Technical Specification (2 ppm) Limits

The licensee performed a root cause analysis and documented this event in Condition Reports 2000-0282, 2000-0400 and 2000-0523.

- (Closed) Licensee Event Report 50-382/00-010-00: Nonconservative Essential Chiller Technical Specification Surveillance

The licensee performed a root cause analysis and documented this event in Condition Report 2000-1117. The NRC reviewed this event in Inspection Report 50-382/00-11, Section 1R15.1.

- (Closed) Licensee Event Report 50-382/00-011-00: Reactor Coolant System Pressure Boundary Leakage Because of Primary Water Stress Corrosion Cracking and Leaking Mechanical Nozzle Seal Assembly Clamps

The licensee performed a root cause analysis and documented this event in Condition Report 2000-1265.

b. Findings

No findings of significance were identified.

4OA5 Other

The inspectors reviewed the following licensee event reports and determined that the issues described in the licensee event reports were previously addressed. No further action is required.

- (Closed) Licensee Event Report 50-382/99-010-00: Inadequate Pumping Capacity in the Dry Cooling Tower Areas Because of Inadequate Design Control

This event was reviewed in NRC Inspection Report 50-382/99-16, Section E1.1 and resulted in a noncited violation of 10 CFR Part 50, Appendix B, Criterion III.

- (Closed) Licensee Event Report 50-382/99-012-00: Potential Operation With Both Control Room Normal Outside Air Intake Valves Inoperable Because of Excessive Valve Leakage

This event was reviewed in NRC Inspection Report 50-382/99-07, Section O7.1b.6 and resulted in a noncited violation for failure to report and for failure to implement adequate corrective actions required by 10 CFR Part 50, Criterion XVI.

- (Closed) Licensee Event Report 50-382/99-018-00: Operation in a Condition Prohibited by Technical Specification 3.5.2 Because of a Valve Reach Rod Failure

This event was the subject of a special inspection documented in NRC Inspection Report 50-382/99-25, Sections O1.2 and O1.4. On April 27, 2000, the NRC identified two noncited violations following deliberations in accordance with the Enforcement Process (EA 2000-023).

- (Closed) Licensee Event Report 50-382/00-002-00: Technical Specification Violations Because of Plant Mode Changes With Inoperable Steam Generator Snubbers

This event was reviewed in NRC Inspection Report 50-382/00-01, Section E8.6. On March 3, 2000, the inspectors identified that this deficiency resulted in a noncited violation of plant procedures and Technical Specification 6.8.1.a.

- (Closed) Licensee Event Report 50-382/00-007-00: Technical Specification Action Not Met Because of an Invalid Sample For an Inoperable Radiation Monitor

This event was reviewed in NRC Inspection Report 50-382/00-10, Section 1R15.2. On September 30, 2000, the NRC concluded that this issue had very low risk significance and resulted in a noncited violation of Technical Specification 3.3.3.1.

- (Closed) Licensee Event Report 50-382/00-009-00: Potential for Loss of Safe Shutdown Equipment by a Fire in Either of Two Separate Fire Areas

This event was reviewed in NRC Inspection Report 50-382/00-07, Section 1R05.4. The NRC concluded that this issue had low safety significance because of a relatively low ignition frequency, fire suppression and detection systems were not degraded, and actions were available to ensure a safe shutdown path in Fire Area RAB-2. This deficiency resulted in a noncited violation of License Condition 2.C.9. The licensee entered this finding into their corrective action program as Condition Report 2000-1088.

- (Closed) Licensee Event Report 50-382/01-002-00: Common Mode Failure of Containment Isolation Valves Because of Design Deficiency

The inspectors reviewed this event during this inspection quarter. The inspectors documented the results of their inspections in Sections 1R13.2 and 4OA2. The inspectors found that the issue had very low safety significance because the containment penetration was small in diameter (½-inch) and the licensee successfully isolated the penetration manually as required by Technical Specifications. This deficiency resulted in a Green finding.

4OA6 Meetings

Exit Meeting Summary

- .1 The engineering and maintenance inspectors presented the inspection results to Mr. C. Dugger, Vice President, Operations, and other members of licensee management at the conclusion of the inspection on January 25, 2001. The licensee acknowledged the findings presented. A supplemental exit meeting was conducted by telephone on February 6, 2001, with Mr. B. Allen, Engineering Director, and other members of the staff. The licensee acknowledged the additional findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

- .2 The radiation inspector presented the inspection results to Mr. E. Ewing, General Manager, Plant Operations, and other members of licensee management at the conclusion of the inspection on March 16, 2001. The licensee acknowledged the findings presented.

The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

- .3 The resident inspectors presented the inspection results to Mr. John Herron, Vice President, Operations, and other members of licensee management at the conclusion of the inspection on April 3, 2001. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

B. Allen, Director, Engineering
M. Brandon, Manager, Licensing
S. Brown, Supervisor, Instruments and Controls
R. Conner, Superintendent, Instruments and Controls
J. Douet, Manager, Operations
C. Dugger, Vice President, Operations
E. Ewing, General Manager, Plant Operations
R. Fili, Manager, Quality Assurance
P. Fresneda, Analysis Engineer
B. Fron, Superintendent, Plant Security
C. Fugate, Manager, Technical Support
T. Godet, Manager, Planning and Scheduling
A. Harris, Director, Nuclear Safety Assurance
J. Herron, Vice President, Operations
J. Holman, Design Engineer
H. LeBlanc, Maintenance Rule Program Coordinator
T. Lett, Superintendent, Radiation Protection
D. Madere, Engineer, Licensing
D. Marse, Chemistry Specialist
K. McBee, Senior Maintenance Specialist, Instruments and Controls
P. McKenna, System Engineer
J. Noehl, Radiation Protection Instructor, Training
J. O'Hern, Manager, Training and Emergency Planning
T. Payne, Engineer, System Engineering
E. Perkins, Jr., Director, Nuclear Safety Assurance
W. Rhodes, Senior Maintenance Specialist, Instruments and Controls
J. Ridgel, Manager, Plant Maintenance
D. Rohli, Design Engineer
L. Rushing, Manager, System Engineering
A. Schaubhut, Technician, Radiation Protection
P. Stanton, Design Engineer
W. Steelman, Design Engineer
B. Thigpen, Manager, Planning and Scheduling
R. Williams, Licensing Engineer
S. Wilson, Supervisor, Radiation Protection

NRC

W. B. Jones, Chief, Project Branch E, DRP

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-382/0013-01 NCV Failure to report condition outside design-basis involving main steam isolation valves (Section 1R02.b).

Closed

50-382/0013-01 NCV Failure to report condition outside design-basis involving main steam isolation valves (Section 1R02.b).

50-382/98-019-00 and -01 LER Failure of Containment Isolation Valves to Close During Testing because of Solenoid Valves (Section 4OA3).

50-382/99-001-00 LER Technical Specification 3.0.3. Entry Because of Less Than Adequate Chiller Thermostat Control (Section 4OA3).

50-382/99-002-00 LER Leaking Reactor Coolant System Pressure Boundary Nozzles (Section 4OA3).

50-382/99-004-00 LER Missed Surveillance for Engineering Safety Features Actuation Signal Containment Cooling Function Response Time Testing (Section 4OA3).

50-382/99-007-00 LER Operation Outside Tornado Missile Protection Licensing Basis for Turbine-Driven EFW Pump and Steam Supply Piping (Section 4OA3).

50-382/99-017-00 LER Failure to Perform Technical Specification Surveillance Tests on a Penetration Overcurrent Protection Device (Section 4OA3).

50-382/00-003-00 LER Shutdown in Accordance With Technical Specification 3.0.3 Because of a Cracked Weld That Rendered the Charging System Inoperable (Section 4OA3).

50-382/00-004-00 LER Potential Degradation of Feedwater Isolation Valves Because of Design-Basis Deficiencies (Section 4OA3).

50-382/00-005-00 LER Operating in a Condition Prohibited by Technical Specification 3.6.2.2 Because of an Inoperable Containment Fan Cooler.

50-382/00-006-00 LER Both Channels of Chlorine Detectors Found Outside Technical Specification (2 ppm) Limits (Section 4OA3).

50-382/00-010-00 LER Nonconservative Essential Chiller Technical Specification Surveillance (Section 4OA3).

50-382/00-011-00	LER	Reactor Coolant System Pressure Boundary Leakage Because of Primary Water Stress Corrosion Cracking and Leaking Mechanical Nozzle Seal Assembly Clamps (Section 4OA3).
50-382/99-010-00	LER	Inadequate Pumping Capacity in the Dry Cooling Tower Areas Because of Inadequate Design Control (Section 4OA4).
50-382/99-012-00	LER	Potential Operation with Both Control Room Normal Outside Air Intake Valves Inoperable Because of Excessive Valve Leakage (Section 4OA4).
50-382/99-018-00	LER	Operation in a Condition Prohibited by Technical Specification 3.5.2 Because of a Valve Reach Rod Failure (Section 4OA4).
50-382/00-002-00	LER	Technical Specification Violations Because of Plant Mode Changes With Inoperable Steam Generator Snubbers (Section 4OA4).
50-382/00-007-00	LER	Technical Specification Action Not Met Because of an Invalid Sample for an Inoperable Radiation Monitor (Section 4OA4).
50-382/00-009-00	LER	Potential for Loss of Safe Shutdown Equipment by a Fire in Either of Two Separate Fire Areas (Section 4OA4).
50-382/01-002-00	LER	Common Mode Failure of Containment Isolation Valves Because of Design Deficiency

LIST OF ACRONYMS USED

ACCW	auxiliary component cooling water
CCW	component cooling water
CFR	Code of Federal Regulations
EFW	emergency feedwater
FSAR	Final Safety Analysis Report
LER	licensee event report
NCV	noncited violation
NRC	Nuclear Regulatory Commission
TORMIS	tornado missile evaluation code

DOCUMENTS REVIEWED

The following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings:

Safety Evaluations

99-008, Evaluation of ER-W3-98-0869-00-00, "SI-602A(B) Actuator Upgrade to Meet EPRI MOV PPM"

99-015, Evaluation of ER-W3-98-0789-02-00, "MS-401 A&B Actuator Upgrade"

99-041, Evaluation of ER-W3-99-0083-00-01, "EFW Quantity for Chapter 15 Events" and ER-W3-99-0601-00-00, "Waterford 3 Water Consumption Plan"

00-018, Evaluation of ER-W3-98-1387-01-00, "Recover RWSP Level Operating Margin"

00-022, Evaluation of ER-W3-99-0661-00-00, "Design-Basis Temperature Increase for CCW Pump Rooms, CCW HXCHR, EFW Pump Rooms, SDHXCHR Rooms, and Charging Pump Room"

00-045, Evaluation of Calculation EC-S98-008, "Radiological Doses Following a Fuel Handling Accident," Revision 2

00-055, Evaluation of Core Operating Limits Report, Revision 4

00-057, Evaluation of STP 420689, "CVC-403 Response Evaluation," Revision 0

00-068, Evaluation of ER-W3-00-0853-00-00, "Replacement of Pressurizer Proportional Heaters"

00-069, Evaluation of ER-W3-00-0890-01-00, "MSIV Design-Basis," and ER-W3-00-0890-01-00, "MSIV Tech Spec Bases and TRM Changes"

50.59 Screenings

ER-W3-01-0035-00-00

Stress Calculation SA-2491, Revision 2, Change 1

ER-W3-00-348-04-00

Procedure UNT-007-015, Revision 3

Procedure UNT-007-058, Revision 1

Calculation EC-S99-004, Revision A

ER-W3-99-0155-00-00

Instrument Package for Instrument RC IT0112HA2

Calibration Data Package for Instrument BO ILS3005

Calibration Data Package for Instrument ES IPT1441 C

Procedure OP-903-129, Revision 1, Change 0

Drawings

G-160 "Flow Diagram Component Closed Cooling Water System" Revision 49

Calculations

NUMBER	DESCRIPTION	REVISION
EC-M95-008	"Ultimate Heat Sink Design-Basis"	1, Change 1
EC-M95-009	"Ultimate Heat Sink Fan Requirements Under Various Ambient Conditions"	0, Change 1
MN(Q)-9-3	"Ultimate Heat Sink Study"	2, Change 3
MN(Q)-9-9	"Wet Cooling Tower Losses During LOCA"	4
MN(Q)-9-10	"Dry Cooling Tower, CCW Heat Exchanger, Wet Cooling Tower Heat Loads During Normal and External Events"	1

Licensee Event Reports

NUMBER	DESCRIPTION	REVISION
96-004	"Failure to Meet Intent of Technical Specification Surveillance Because of Inadequate Corrective Action"	0
96-007	"Low ACCW Flow to Essential Chillers Because of Fouling and Inadequate Design"	0
97-015	"Ultimate Heat Sink Did Not Incorporate Conservative Assumptions"	0
97-027	"Controller for ACCW Valve ACC-126A Left in Manual"	1
99-010	"Inadequate Pumping Capacity in the Dry Cooling Tower"	0

Condition Reports

CR-WF3-1996-0686	CR-WF3-1999-0266	CR-WF3-1999-0655	CR-WF3-1999-0854
CR-WF3-1996-0870	CR-WF3-1999-0379	CR-WF3-1999-0660	CR-WF3-1999-0861
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CR-WF3-1998-0173	CR-WF3-1999-0459	CR-WF3-1999-0695	CR-WF3-2000-0084
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CR-WF3-2000-0351	CR-WF3-2000-0798	CR-WF3-2000-1152	CR-WF3-2000-1379
CR-WF3-2000-0400	CR-WF3-2000-0804	CR-WF3-2000-1191	CR-WF3-2000-1383
CR-WF3-2000-0400	CR-WF3-2000-0832	CR-WF3-2000-1192	CR-WF3-2000-1480
CR-WF3-2000-0496	CR-WF3-2000-0840	CR-WF3-2000-1211	CR-WF3-2000-1533
CR-WF3-2000-0498	CR-WF3-2000-0857	CR-WF3-2000-1217	CR-WF3-2000-1553
CR-WF3-2000-0523	CR-WF3-2000-0862	CR-WF3-2000-1305	CR-WF3-2000-1558
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CR-WF3-2000-0698	CR-WF3-2000-1113		

Engineering Reports

DESCRIPTION	REVISION
“Maintenance Rule Program Periodic Assessment”	1/28/98
“Maintenance Rule Program Periodic Assessment”	8/6/99

Procedures

NUMBER	DESCRIPTION	REVISION
459020100	“Engineering Guide - Maintenance Rule Guideline”	2
CE-003-162	“Determination of Biologicals in Water and on Surfaces”	2
NOECP-255	“Administration of Piping Inspection for Microbiologically Influenced Corrosion”	3
PE-001-015	“Generic Letter 89-13 Heat Exchanger Test Basis”	2
PE-004-021	“Component Cooling Water Heat Exchanger Performance Test”	1
PE-004-024	“ACCW and CCW System Flow Balance”	1, Change 2
PE-004-033	“Wet Cooling Tower A(B) Thermal Performance Test”	0
UNT-006-029	“Administrative Procedure - The Maintenance Rule”	2

Miscellaneous Documents

NUMBER	DESCRIPTION	REVISION
	Expert Panel Meeting Minutes	December 14, 2000

NUMBER	DESCRIPTION	REVISION
Letter W3FI-93-0110	"Confirmation of Implementation of Generic Letter 89-13"	January 29, 1993
Letter W3P90-0207	"Generic Letter 89-13 Response"	January 29, 1990
MAI-402917	"Dry Cooling Tower Fan 5B Corrective Maintenance"	April 1, 1999
MAI-407744	"Dry Cooling Tower A Fan Horsepower Measurements"	December 29, 1999
MAI-415478	"Dry Cooling Tower B Fan Horsepower Measurements"	May 4, 2000
PE-004-021 Results	"Cycle 10 Generic Letter 89-13 Component Cooling Water Heat Exchanger B Performance Test"	April 6, 2000
PE-004-021 Results	"Cycle 10 Generic Letter 89-13 Component Cooling Water Heat Exchanger A Performance Test"	April 10, 2000
PE-004-024 Results	"Refuel 9 ACCW and CCW Train A Flow Balances Test Data"	March 5, 1999
PE-004-024 Results	"Refuel 9 ACCW and CCW Train B Flow Balances Test Data"	March 7, 1999
PE-004-024 Results	"Refuel 10 ACCW and CCW Train A Flow Balances Test Data"	October 28, 2000
PE-004-024 Results	"Refuel 10 ACCW and CCW Train B Flow Balances Test Data"	November 7, 2000
W3-DBD-04	"Component Cooling Water Auxiliary Component Cooling Water Design-Basis Document"	Revision 3
W3-ME-00-0001	"Wet Cooling Tower B Thermal Capability Test"	April 6, 2000
W3-ME-00-0002	"Wet Cooling Tower A Thermal Capability Test"	April 10, 2000
W3-ME-98-001-00	"Generic Letter 89-13 Wet Cooling Tower A and B Performance Test"	May 21, 1998