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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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ARLINGTON, TEXAS 76011-4005

April 17, 2003

Joseph E. Venable  
Vice President Operations  
Waterford 3  
Entergy Operations, Inc.  
17265 River Road  
Killona, Louisiana 70066-0751

SUBJECT: NRC INSPECTION REPORT 50-382/03-04

Dear Mr. Venable:

On March 22, 2003, the NRC completed an inspection at your Waterford Steam Electric Station, Unit 3. The enclosed report documents the inspection findings, which were discussed on March 24, 2003, with you and other members of your staff.

The 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. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, one self-revealing finding was identified that was evaluated under the risk significance determination process as having very low safety significance (Green). Additionally, a licensee identified violation is listed in Section 40A7 of this report. If you contest this 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 Nuclear Regulatory Commission, ATTN: Document Control Desk, 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/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

William B. Jones  
Project Branch E  
Division of Reactor Projects

C-10

Entergy Operations, Inc.

-2-

Docket: 50-382

License: NPF-38

Enclosure:

NRC Inspection Report

50-382/03-04

cc w/enclosure:

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-3-

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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket: 50-382  
License: NPF-38  
Report: 50-382/03-04  
Licensee: Entergy Operations, Inc.  
Facility: Waterford Steam Electric Station, Unit 3  
Location: Hwy. 18  
Killona, Louisiana  
Dates: December 29, 2002, through March 22, 2003  
Inspectors: M. C. Hay, Senior Resident Inspector  
G. F. Larkin, Resident Inspector  
J. M. Mateychick, Reactor Inspector  
P. A. Goldberg, Senior Reactor Inspector  
Paul J. Elkmann, Emergency Preparedness Inspector  
Approved By: W. B. Jones, Chief, Project Branch E  
Attachment: Supplemental Information

## SUMMARY OF FINDINGS

Waterford Steam Electric Station, Unit 3  
NRC Inspection Report 50-382/03-04

IR05000382/2003-04; Entergy Operations, Inc.; on 12/29/2002-03/22/2003; Waterford Steam Electric Station; Unit 3; Event Followup

The report covered a 12-week period of inspection by resident inspectors, an emergency preparedness inspector, and a reactor inspector. The inspection identified one Green finding. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### A. Inspector Identified and Self-Revealing Findings

#### **Cornerstone: Initiating Events**

- Green. A self-revealing finding was identified for the failure to maintain and operate main generator seal oil backup differential pressure regulating Valve SO-308 in accordance with vendor recommendations. This condition resulted in a turbine trip and subsequent reactor power cutback on February 14, 2003.

This self-revealing finding is greater than minor because it resulted in a perturbation in plant stability resulting in a reactor power cutback, similar to example 4.b in Appendix E of Manual Chapter 0612. The finding is of very low safety significance because, although it caused a plant transient, it did not increase the likelihood of a primary or secondary system loss-of-coolant accident initiator, did not contribute to the loss of mitigation equipment functions, and did not increase the likelihood of a fire or internal/external flood (Section 4OA3).

### B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee, was reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The violation and corrective action tracking number is listed in Section 4OA7.

## **Report Details**

Summary of Plant Status: The plant was operated at approximately 100 percent power December 29, 2002, through February 14, 2003. Power was reduced to approximately 60 percent power February 14, 2003, following a turbine trip and subsequent reactor power cutback. The reactor was shutdown February 15, 2003, to support main turbine generator repairs. On February 19, 2003, reactor power was restored to 100 percent. Reactor power was maintained at approximately 100 percent throughout the remainder of the inspection period.

### **1 REACTOR SAFETY**

Initiating Events, Mitigating Systems, Barrier Integrity (R)

#### **1R01 Adverse Weather Protection (71111.01)**

##### **a. Inspection Scope**

On January 23, 2003, the inspectors performed a walkdown of components and systems susceptible to freezing using Procedure OP-002-007, "Freeze Protection and Temperature Maintenance," Revision 10, to verify that the onset of cold weather would not affect mitigating systems. This inspection included a review of deficiency tags and condition reports associated with heat tracing and other cold weather protection measures to determine their impact on the systems. Additionally, the inspectors discussed adverse weather preparations with various licensee personnel.

##### **b. Findings**

No findings of significance were identified.

#### **1R04 Equipment Alignment (71111.04)**

##### **.1 Reactor Auxiliary Building Cable Vault and Switchgear Area Ventilation System**

##### **a. Inspection Scope**

The inspectors performed a complete equipment alignment inspection of the reactor auxiliary building cable vault and switchgear area ventilation system. A review of select maintenance work orders and corrective action documents was performed to assess the material condition and performance of the switchgear area ventilation system. System configuration was assessed using Operating Procedure OP-003-026, "Cable Vault and Switchgear HVAC," Revision 7. A walkdown of accessible portions of the system was performed to assess material condition, such as system leaks and housekeeping issues, that could adversely affect system operability. The inspection also consisted of verifying that the system was installed, maintained, and tested as described in the Updated Final Safety Analysis Report and Technical Specifications.

##### **b. Findings**

Introduction: The NRC identified that Switchgear Ventilation System Trains A and B safety-related outside air intake Dampers SVS-101 and SVS-102, respectively, are



susceptible to a common mode failure vulnerability associated with a loss of nonsafety-related instrument air. Pending determination of the finding's safety significance, this finding is identified as Unresolved Item (URI) 50-382/03-04-01.

Description: Switchgear Ventilation System Trains A and B outside air intake Dampers SVS-101 and SVS-102, respectively, are safety-related, installed in series, and pneumatically operated. A safety injection actuation signal automatically positions these dampers to a minimum open position using instrument air. The inspectors noted that a loss of instrument air, which is a nonsafety-related system, would introduce a common mode failure for Dampers SVS-101 and SVS-102 preventing these valves from performing their safety-related function during certain postaccident conditions. In response to this concern, the licensee took immediate corrective actions and gagged, in the minimum open position, Damper SVS-102. A review of design documentation by the inspectors and the licensee identified that the basis for the valves being positioned in the minimum open position following a safety injection actuation signal was not clearly documented. The licensee developed, but had yet to implement, a special test to assess the effects on the control room envelope and those areas surrounding the control room due to Dampers SVS-101 and SVS-102 failing in the open position.

Analysis: Using the guidance in Appendix B of Inspection Manual Chapter 0612, this issue potentially will screen more than minor. The barrier integrity objective, to provide reasonable assurance that the physical design barriers to protect the control room operators from radionuclide releases caused by accidents or events, was affected.

A Phase 1 screening was performed for the issue utilizing NRC Manual Chapter 0609, Appendix A, Attachment 1. The finding was assessed as potentially affecting the radiological barrier function for the control room. The significance of this issue is unresolved pending the results of a special test that will determine the pressure effects on the control room envelope following failure of Dampers SVS-101 and SVS-102 to maintain their minimum open safety position following a safety injection actuation signal.

Enforcement: 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that "Measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions." The failure to maintain design control of the switchgear ventilation system resulting in the potential common mode failure of Dampers SVS-101 and SVS-102, due to loss of the nonsafety related instrument air system, is being considered a violation of 10 CFR Part 50, Appendix B, Criterion III. Pending determination of the finding's safety significance, this finding is identified as URI 50-382/03-04-01. The licensee documented this issue in their corrective action process as Condition Report CR-WF3-2003-0062.

.2 High-Pressure Safety Injection System Train A

a. Inspection Scope

On February 4, 2003, the inspectors performed a partial walkdown of the mechanical and electrical components of a critical portion of High-Pressure Safety Injection System Train A while the train was in a standby alignment. This walkdown was completed during scheduled maintenance that rendered Train B inoperable. The inspectors verified that the system was installed, maintained, and tested as described in the Updated Final Safety Analysis Report and Technical Specifications.

b. Findings

No findings of significance were identified.

.3 Shield Building Ventilation System

a. Inspection Scope

On January 29, 2003, the inspectors performed a partial walkdown of the mechanical and electrical components of a critical portion of Shield Building Ventilation System Train A. This walkdown was completed during scheduled maintenance that rendered Train B inoperable. The inspectors verified that the system was installed, maintained, and tested as described in the Updated Final Safety Analysis Report and Technical Specifications.

b. Findings

No findings of significance were identified.

.4 Component Cooling Water Train A

a. Inspection Scope

On March 13, 2003, the inspectors completed a partial equipment alignment inspection of Component Cooling Water Train A. A review of select maintenance work orders and corrective action documents was performed to assess the material condition and performance of Component Cooling Water Train A. System configuration was assessed using Operating Procedure OP-002-003, "Component Cooling Water," Revision 13. A walkdown of accessible portions of the system was performed to assess material condition, such as system leaks and housekeeping issues, that could adversely affect system operability.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

The inspectors conducted six inspections to determine if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capabilities, and maintained passive fire protection features in good material condition.

The following areas were inspected:

- Reactor auxiliary building +21-foot elevation on January 23, 2003
- Control room envelop on February 4, 2003
- Safety Injection Pump Area B on February 4, 2003
- Switchgear Room B on February 4, 2003
- Reactor auxiliary building +46-foot elevation on February 20, 2003
- Reactor auxiliary building -4-foot and -35-foot elevations on February 28, 2003

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

On February 3, 2003, the inspectors observed licensed operator simulator training. The simulator training evaluated the operator's ability to recognize, diagnose, and respond to a small tube leak in Steam Generator 1, a reactor trip with failure of two control element assemblies to insert, and the failure of High-Pressure Safety Injection Pump B to start on a safety injection actuation signal. The inspectors observed and evaluated the following areas:

- Understanding and interpreting annunciator and alarm signals
- Diagnosing events and conditions based on signals or readings
- Understanding plant systems
- Use and adherence of Technical Specifications
- Crew communications including command and control
- The crew's and evaluator's critiques

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

.1 Routine Maintenance Rule Review

a. Inspection Scope

During the inspection period, the inspectors reviewed licensee implementation of the Maintenance Rule. The inspectors considered the characterization, safety significance, performance criteria, and appropriateness of goals and corrective actions. The inspectors assessed the licensee's implementation of the Maintenance Rule to the requirements outlined in 10 CFR 50.65 and Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2. The inspectors reviewed the following systems that displayed performance problems:

- Emergency Diesel Generating System Train A
- Containment Cooling HVAC Trains A and B

b. Findings

No findings of significance were identified.

.2 Periodic Evaluation Reviews

a. Inspection Scope

The inspectors reviewed the Waterford 3 report documenting the performance of the last Maintenance Rule periodic effectiveness assessment. This periodic evaluation covered the period from November 2000 through April 2002.

The inspectors reviewed the program for monitoring risk-significant functions associated with structures, systems, and components using reliability and unavailability. The performance monitoring of nonrisk-significant functions using plant level criteria was also reviewed.

The inspectors evaluated whether the report 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
- Review and adjustment of definitions of functional failures

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

The inspectors reviewed procedures, condition reports, and Category (a)(1) recovery plans associated with the above activities for the following systems: core protection calculator, emergency diesel generator sequencer, feedwater, broad range gas monitors, process radiation monitors, essential chillers (refrigeration), and shutdown cooling.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors evaluated the use of the corrective action system within the Maintenance Rule Program for issues associated with risk-significant systems. The inspectors examined a sample of corrective action documents associated with systems which were, or had been, in Maintenance Rule Category (a)(1), including recovery plans for improving the system performance. The inspectors performed this review to establish that the corrective action program was entered at the appropriate threshold for the purpose of:

- Implementing the corrective action process when a performance criterion was exceeded
- Correcting performance-related issues or conditions identified during the periodic evaluation
- Correcting generic issues or conditions identified during programmatic assessments, audits, or surveillances.

The inspectors identified an observation concerning the licensee's implementation of appropriate corrective actions to maintain the performance of the core protection calculator system. The core protection calculator was placed in Maintenance Rule

status Category (a)(1) from July 2000 to February 2001 and again in December 2001 until the time of this inspection due to both functional failures and unavailability.

The inspectors reviewed the licensee's goals for monitoring the performance of the core protection calculator for the Maintenance Rule. The inspectors noted that one performance criteria for each channel to remain in Category (a)(2) consisted of functional failures that resulted in a spurious channel trip being  $\leq 20$  functional failures per 18-month period per channel. The inspectors found that Channel D is not meeting this goal. The inspectors' review of system performance since July 1999 against this goal indicated that prior to July 2000 there was another period when Channel D was not meeting the goal. In addition, the inspectors found that Channels B and C also had periods of not meeting this goal, sometimes concurrently with Channel D. The licensee stated that since 1999 there were 13 instances where one channel was in trip and a second channel was in bypass.

The inspectors reviewed Condition Reports CR-WF3-2000-0839 and -2001-1346 and found that the licensee's corrective actions were focused on replacing failed electronic components and improving the ventilation flow through the core protection calculator cabinets to reduce the operating temperature of the electronic components. The licensee intends to maintain the current core protection calculators system until replacement during Refueling Outage 14 in the fall of 2006.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed risk assessments for planned or emergent maintenance activities to determine if the licensee met the requirements of 10 CFR 50.65(a)(4) for assessing and managing any increase in risk from these activities. Risk evaluations of the following five occurrences were reviewed:

- On January 23, 2003, Nitrogen Gas Valve NG-709 was declared inoperable and required emergent repairs.
- On February 5, 2003, Emergency Feedwater Pump B was declared inoperable and required emergent repairs.
- On February 6, 2003, troubleshooting activities were performed to isolate a ground on the control element drive mechanism control system.
- On February 9, 2003, Main Steam Admission Valve MS-401B to the turbine-driven auxiliary feedwater pump was declared inoperable and required emergent repairs.

- On March 14, 2003, the Plant Protection System Channel B High Log Power Trip Bypass Module was replaced.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions (71111.14)

a. Inspection Scope

For the nonroutine events described below, the inspectors reviewed operator logs, plant computer data, and strip charts to determine what occurred, how the operators responded, and whether the response was in accordance with plant procedures:

- On February 14, 2003, the inspectors observed the site response to a turbine trip followed by a reactor power cutback from 100 percent power. Reactor power was reduced to approximately 60 percent with the steam bypass control system available to mitigate the transient. On February 15, 2003, the inspectors observed the operators perform a reactor shutdown following the identification of insulation degradation that affected the main generator exciter.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the technical adequacy of four operability evaluations to verify that they were sufficient to justify continued operation of a system or component. The inspectors considered that, although equipment was potentially degraded, the operability evaluation provided adequate justification that the equipment could still meet its Technical Specification, Updated Final Safety Analysis Report, and design-bases requirements and that the potential risk increase contributed by the degraded equipment was thoroughly evaluated. The following evaluations were reviewed:

- Operability evaluation addressing missing nuts, washers, and a U-bolt affecting the auxiliary component cooling water system Wet Cooling Tower A (Condition Report CR-WF3-2003-00089)
- Operability evaluation addressing broken reach rod linkage affecting operation of Containment Spray Valve CS-117B (Condition Report CR-WF3-2003-00309)

- Operability evaluation addressing total component cooling water flow in the accident alignment exceeding design flow rates (Condition Report CR-WF3-2003-00512)
- Operability evaluation addressing degraded seal water flow to Charging Pump B (Condition Report CR-WF3-2003-00640)

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors performed a review of operator workarounds. This review evaluated the cumulative affects of current operator workarounds to assess the overall impact affecting the operators' ability to respond in a correct and timely manner to plant transients and accidents.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed postmaintenance tests to verify system operability and functional capabilities. The inspectors considered whether testing met design and licensing bases, Technical Specifications, and licensee procedural requirements. The inspectors reviewed the testing results for the following six components:

- Essential Chiller A following a low refrigerant pressure trip due to refrigerant leakage through a damaged dehydrator gasket joint on December 12, 2002
- Nitrogen Gas Valve NG-811 following repair work on valve internal parts on February 20, 2003
- Nitrogen Gas Valve NG-709 following valve stroke failure on February 23, 2003
- Chilled Water Valve CHW-900 following valve actuator maintenance on February 25, 2003
- Main Steam Valve MS-401B following motor replacement on March 10, 2003
- Plant Protection System Channel B High Log Power Trip Bypass Module following replacement on March 14, 2003



b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed or reviewed the following six surveillance tests to ensure the systems were capable of performing their safety function and to assess their operational readiness. Specifically, the inspectors considered whether the following surveillance tests met Technical Specifications, the Updated Final Safety Analysis Report, and licensee procedural requirements:

- Surveillance Procedure OP-903-030, "Safety Injection Pump Operability Verification," Revision 13, was reviewed on January 24, 2003. This surveillance tested the functional capability of Low-Pressure Safety Injection Pump A.
- Surveillance Procedure OP-903-046, "Emergency Feedwater Pump Operability Check," Revision 15, performed on February 5, 2002. This surveillance tested the functional capability of motor-driven Emergency Feedwater Pump B.
- Surveillance Procedure OP-903-107, "Plant Protection System Channel \_A\_B\_C\_D Functional Test," Revision 14, was reviewed on February 19, 2003. This surveillance tested the bypass, pretrip, and trip actuation capability of Plant Protection System Channel A.
- Surveillance Procedure STA-001-001, "Containment Air Lock Seal Leakage Test," Revision 4, was reviewed on February 20, 2003. This surveillance tested the containment air lock pressure decay rate.
- Surveillance Procedure OP-903-102, "Safety Channel Nuclear Instrumentation Functional Test," Revision 10, was reviewed on February 21, 2003. This surveillance tested the functional capability of the Excore Nuclear Safety Channels.
- Surveillance Procedure OP-903-043, "Shield Building Ventilation System Operability Check," Revision 9, was reviewed on March 10, 2003. This surveillance tested stroke times for critical valves required to change position and verified adequate flow rates through the filter media.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed a temporary plant modification of the switchgear ventilation system to ensure that the modification did not adversely affect system operability or design requirements specified in the Updated Final Safety Analysis Report and Technical Specifications. The modification consisted of gagging switchgear ventilation system Damper SVS-102 in the minimum open position. This modification was installed to place the damper in its fail safe position after identifying that a loss of nonsafety-related instrument air would prevent the valve from performing its safety-related function during certain postaccident conditions. The inspectors reviewed the following documentation during this inspection activity:

- Condition Report CR-WF3-2003-00062
- EC-F00-0026, "Post Fire Safe Shutdown Analysis"
- Updated Final Safety Analysis Report, Section 9.4.3, "Reactor Auxiliary Building Ventilation"

b. Findings

No findings of significance were identified.

Emergency Preparedness (EP)

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspector performed an in-office review of Revision 28 to the Waterford 3 Emergency Plan, submitted January 15, 2003. Revision 28 changed organizational titles, updated facility and equipment information, clarified the revision process for the emergency plan and emergency action levels, and made editorial corrections. Revision 28 also implemented aspects of the removal of the postaccident sampling system as approved in Technical Specification Amendment 172. The inspector compared Revision 28 with its previous revision and with the requirements of 10 CFR 50.54(q) to determine if the revision decreased the effectiveness of the emergency plan.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors reviewed the drill scenario and observed activities in the simulated control room and the emergency operations facility. The drill scenario simulated equipment failures, a site evacuation, a loss of coolant accident, and the release of radioactive material offsite. In addition, the inspectors reviewed the drill critiques and the resolution of identified performance problems. The drill was conducted on March 13, 2003.

b. Findings

No findings of significance were identified.

**4 OTHER ACTIVITIES (OA)**

4OA1 Performance Indicator Verification (71151)

.1 Initiating Events and Barrier Integrity Performance

a. Inspection Scope

The inspectors reviewed data for initiating events and barrier integrity cornerstone performance indicators from the fourth quarter of 2001 through the third quarter of 2002 for the following:

- Performance indicator data for unplanned power changes per 7,000 critical hours
- Performance indicator data for scrams with loss of normal heat removal
- Performance indicator data for safety system unavailability/emergency ac power

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

a. Inspection Scope

The inspectors reviewed the licensee's corrective actions associated with the failure of Main Steam Admission Valve MS-401B for the turbine-driven emergency feedwater pump. This valve failed to operate during surveillance testing on March 9, 2003. The inspectors reviewed Condition Report CR-WF3-2003-00616 to ensure the full extent of

the issue was identified, appropriate evaluations were performed, and corrective actions were specified and prioritized. Additionally, the inspectors reviewed maintenance history on the valve to ensure that maintenance activities were accomplished in accordance with vendor recommendations and specifications.

b. Findings

No findings of significance were identified.

4OA3 Event Followup (71153)

a. Inspection Scope

On February 14, 2003, the plant experienced a main turbine trip and subsequent reactor power cutback while transferring Electrical Bus 3AB to an alternate power supply. On February 15, 2003, the reactor was subsequently shut down after identifying insulation degradation affecting the main generator exciter armature. The inspectors assessed plant response to the transient conditions resulting from the turbine trip to verify safety systems performed appropriately. The inspectors reviewed the licensee's actions to identify and correct those degraded conditions that could impact plant restart.

b. Findings

Introduction: A Green self-revealing finding was identified for the failure to maintain and operate main generator seal oil backup differential pressure regulating Valve SO-308 in accordance with vendor recommendations. This condition resulted in a turbine trip and subsequent reactor power cutback on February 14, 2003.

Description: On February 14, 2003, the licensee transferred Electrical Bus 3AB to an alternate power supply. The electrical bus transfer resulted in the loss of one of the two available air side seal oil pumps. During the bus transfer, a turbine trip occurred due to low generator seal oil differential pressure. The licensee's investigation revealed that seal oil backup differential pressure regulating Valve SO-308 had operated slowly and was set at an inappropriate pressure that ultimately resulted in the turbine trip. Vendor recommendations consisted of setting the pressure regulator to a setpoint of 8 psid. The setpoint for the regulator was found to be set at approximately 3 psid, which was below the turbine trip setpoint. The licensee also noted that the vendor recommended monthly cycling of Valve SO-308 to verify its proper operation was never implemented nor contained in a maintenance instruction.

Analysis: The inspectors determined this finding was more than minor because it caused a perturbation in plant stability resulting in a reactor power cutback. Although the finding resulted in a plant transient, the inspectors determined that it did not contribute to the likelihood of a primary or secondary system loss-of-coolant accident initiator, did not contribute to the loss of mitigation equipment functions, and did not increase the likelihood of a fire or internal/external flood. Therefore, the failure to maintain and operate seal oil backup differential pressure regulating Valve SO-308 in

accordance with vendor recommendations was of very low safety significance (Green). The licensee documented this issue in their corrective action process as Condition Report CR-WF3-2003-0408.

Enforcement: No violation of regulatory requirements occurred. The inspectors determined that the finding did not represent a noncompliance because it occurred on nonsafety-related secondary plant equipment.

#### 4OA6 Meetings

##### Exit Meeting Summary

1. The reactor inspector presented the inspection results to Mr. Joseph Venable, Waterford Vice President, and other members of licensee management at the conclusion of the inspection on January 17, 2003.
2. The inspector presented the inspection results to Mr. J. Lewis, Emergency Planning Manager, and other members of licensee management during a telephonic exit interview conducted on March 18, 2003. The licensee acknowledged the findings presented.
3. The resident inspectors presented the inspection results to Mr. Joseph Venable, Waterford Vice President, and other members of licensee management at the conclusion of the inspection on March 24, 2003. 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.

#### 4OA7 Licensee Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements, which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned a noncited violation.

10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that "Measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions." Contrary to this, the licensee identified that Component Cooling Water Trains A and B total flow rates, in an accident condition, exceeded the maximum analyzed flow rates. This condition resulted in reducing the efficiency of the dry cooling towers to remove heat under certain environmental conditions. This was identified in the licensee's corrective action process as Condition Report CR-WF3-2003-0512. This finding is of very low safety significance because the design control deficiency did not result in loss-of-system function as described in Generic Letter 91-18.

## SUPPLEMENTAL INFORMATION

### PARTIAL LIST OF PERSONS CONTACTED

#### Licensee

S. S. Anders, Superintendent, Plant Security  
J. R. Douet, General Manager, Plant Operations  
C. Fugate, Assistant Manager, Operations  
T. Gaudet, Director, Planning and Scheduling  
B. Houston, Superintendent, Radiation Protection  
C. Lambert, Director, Engineering  
J. Lewis, Emergency Planning Manager  
R. Murillo, Acting Manager, Licensing  
R. Osborne, Manager, System Engineering  
K. Peters, Director, Nuclear Safety Assurance/Emergency Preparedness  
J. Laque, Manager, Maintenance  
G. Scott, Engineer, Licensing  
T. E. Tankersley, Manager, Training  
J. Venable, Vice President, Operations  
K. T. Walsh, Manager, Operations

### ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

50-382/0304-01	URI	Design Control of SVS-101 and SVS-102 (Section 1R04.1)
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#### Discussed

Finding	FIN	Failure to Implement Vendor Recommendations (Section 40A3)
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### DOCUMENTS REVIEWED

#### Procedures

Operating Procedure OP-003-026, "Cable Vault and Switchgear HVAC," Revision 7

Surveillance Procedure OP-903-046, "Emergency Feedwater Pump Operability Check,"  
Revision 15

Technical Procedure PE-004-024, "ACCW and CCW System Flow Balance," Revision 1

Surveillance Procedure OP-903-102, "Safety Channel Nuclear Instrumentation Functional  
Test," Revision 10

Surveillance Procedure OP-903-107, "Plant Protection System Channel \_A\_B\_C\_D Functional Test," Revision 14

Surveillance Procedure STA-001-001, "Containment Air Lock Seal Leakage Test," Revision 4

Operations Procedure OP-903-063, "Chilled Water Operability Verification," Revision 11

#### Corrective Action Documents

CR 2003-0302, 2002-2068, 2002-2097, CR 2003-0512, CR 2002-2073, CR 2003-0656, and CR 2003-0167

#### Other

Vendor Technical Manual 457000142, "Zurn Industries Mechanical Draft Cooling Towers," Revision 11

Calculation Number MN(Q) 9-52, "UHS Performance Based on Test Data," Revision 1

Calculation Number MN(Q) 9-2, "Component Cooling Water System," Revision 1

Calculation Number EC-M95-008, "Ultimate Heat Sink Design Basis," Revision 1

Information Notice 96-01, "Potential for High Post-Accident Closed-Cycle Cooling Water Temperatures to Disable Equipment Important to Safety"

W3-DBD-037, "Essential Chilled Water System Design Bases Document," Revision 1

Technical Procedure PE\_004-026, "HVC-101 and HVC-102 Leak Test," Revision 6

Calculation Number NOSH-LPLK-90-01, "Control Room Habitability," Revision 0

W3-DBD-038, "Safety Related HVAC - Control Room Design Bases Document," Revision 1

Calculation Number EC-S96-011, "LOCA Offsite and Control Room Radiological Dose Consequences," Revision 1

Calculation Number EC-S97-025, "Control Room Habitability Following Accidental Chlorine Release," Revision 1

#### Maintenance Action Items

429807, 433429, 438626

Work Order Package

50231536, 00023206, 50231499, 50088469, 50010906, 00019905, 00023866, and 00020353

Condition Reports

CR-WF3-1996-0686	CR-WF3-1996-00870	CR-WF3-1998-00250
CR-WF3-1998-0591	CR-WF3-1999-00701	CR-WF3-2000-0698
CR-WF3-2000-00839	CR-WF3-2000-00845	CR-WF3-2000-00855
CR-WF3-2001-00775	CR-WF3-2001-00858	CR-WF3-2001-00863
CR-WF3-2001-00900	CR-WF3-2001-00917	CR-WF3-2001-01112
CR-WF3-2001-01344	CR-WF3-2001-01346	CR-WF3-2001-01347
CR-WF3-2002-00900	CR-WF3-2002-00358	CR-WF3-2002-0563
CR-WF3-2002-01596	CR-WF3-2003-00051	CR-WF3-2003-00052
CR-WF3-2003-00053	CR-WF3-2003-00056	CR-WF3-2003-00069

Engineering Reports

NUMBER	DESCRIPTION	REVISION
	Maintenance Rule Periodic (a)(1) Assessment	Cycle 11
	Maintenance Rule Periodic (a)(1) Assessment	Cycle 10

Licensee Event Reports

NUMBER	DESCRIPTION	REVISION
01-001	Violation of TS 3.3.1 because a TS channel check was not performed as required by TS 4.3.1.1	0
01-003	Reactor Protection System Trip caused by Turbine Governor Valve Oscillation	0
01-004	Failure to enter TS action statement due to inadequate surveillance test procedure	0

Procedures

NUMBER	DESCRIPTION	REVISION
DC-121	Maintenance Rule	0



Miscellaneous Documents

NUMBER	DESCRIPTION	REVISION
	Entergy South Maintenance Rule Desktop	1
	Core Protection Calculators (CPCs) Top Ten Equipment Issues Plan	1/9/03
	Expert Panel Meeting Minutes	8/13/98
	Expert Panel Meeting Minutes	11/07/01

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
FIN	finding
NRC	U. S. Nuclear Regulatory Commission
URI	unresolved item