

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 50-382
License No.: NPF-38
Report No.: 50-382/97-28
Licensee: Entergy Operations, Inc.
Facility: Waterford Steam Electric Station, Unit 3
Location: Hwy. 18
 Killona, Louisiana
Dates: December 14, 1997, through January 31, 1998
Inspector: J. M. Keeton, Resident Inspector
Approved By: P. H. Harrell, Chief, Project Branch D

ATTACHMENT: Supplemental Information

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EXECUTIVE SUMMARY

Waterford Steam Electric Station, Unit 3
NRC Inspection Report 50-382/97-28

This routine, announced inspection included aspects of operations, maintenance, engineering, and plant support activities. The report covers a 7-week period of resident inspection.

Operations

- The failure to load the appropriate azimuthal power tilt (Aztlt) value into the core operating limits supervisory system (COLSS) prior to exceeding 20 percent power was a violation of Technical Specification (TS) 4.2.3.2a. This is a noncited violation (Section O8.1).
- Positive reactivity was added to the reactor coolant system in a plant condition that prohibited positive reactivity changes, as specified in TS 3.7.6.2.b (ventilation specification). The reactivity addition was minor and did not approach shutdown margin requirements. This is a noncited violation (Section O8.2).
- Conduct of the control element assembly (CEA) operability check was very good. Operators appropriately supplemented the shift complement and a high level of supervisory oversight was evident (Section M1.2).

Maintenance

- Material condition of the valve actuators installed in the ultimate heat sink was poor (Section M2.1).
- Instrumentation and control (I&C) technicians attempted to expand a work package scope without appropriate authorization. Specifically, the technicians wanted to test a component not listed in the work package (Section M3.1).

Plant Support

- The inspectors found trash inside a seismic support in Emergency Diesel Generator (EDG) Room A. During followup by the licensee, oil was found in a seismic support in EDG Room B. The licensee evaluated the additional fire loading created by these items and determined that the additional fire loading remained well below the actual fire loading (Section O2.1).
- Technical Support Center (TSC) responders had not been notified that control room access was restricted (Section P5.1).

Report Details

Summary of Plant Status

During this inspection period, the plant operated at essentially 100 percent power.

I. Operations

O1 Conduct of Operations (71707)

O1.1 General Comments (71707)

The inspector performed frequent reviews of ongoing plant evaluations, control room panel walkthroughs, and plant tours. Observed activities were performed in a manner consistent with safe operation of the facility. The inspector also observed several shift turnovers and daily routine shift activities. Control room logs were verified to be appropriately completed and reviewed.

O2 Operational Status of Facilities and Equipment

O2.1 Transient Combustibles Discovered in EDG Rooms

On December 1, 1997, the inspector was observing a scheduled surveillance run of EDG A, when several combustible items were found inside a seismic support. The inspector informed a senior reactor operator in training, who also observed the items in the support. On December 17, the inspector checked the seismic support and found that the trash was still there. The Shift Superintendent was notified and Condition Report 97-2754 was written. The trash removed from the support consisted of cigarette butts, chewing tobacco, safety ribbon, a styrofoam cup, a candy wrapper, chewing gum, valve labels, a cough drop wrapper, and other unidentifiable items. Other seismic supports in both EDG rooms were inspected. In EDG Room B, approximately 1 pint of lube oil/fuel oil mixture was discovered in a similar seismic support.

Engineers performed a calculation of the additional fire loading in the rooms, which demonstrated that the additional fire loading remained well below the maximum fire loads. Operability of the EDGs was not affected.

In addition to removing the trash, the maintenance manager assumed the lead in informing personnel on management's housekeeping expectations. Additionally, zone walkthroughs had been implemented placing emphasis on inspecting for trash in less obvious areas.

08 Miscellaneous Operations Issues (92901)

08.1 (Closed) Licensee Event Report (LER) 96-010: COLSS Not Monitoring Aztilt Due to Constants Not Being Loaded

On August 5, 1996, following a forced maintenance outage, reactor power was increased above 20 percent with the incorrect Aztilt value loaded in the computer. During the outage, the plant monitoring computer had been rebooted and the Aztilt default value of 0.030 was loaded. This value was nonconservative because the correct value should have been 0.0217. Therefore, TS 4.2.3.2a, which requires COLSS to continuously monitor Aztilt to ensure the Aztilt limit remains within the allowed value, could not be met.

The inspector reviewed the corrective actions taken by the licensee. Procedures OP-010-001, "General Plant Operations," and NE-007-013, "Plant Monitoring Computer Failures and Reboot Procedure," were revised to require that the constants be verified prior to going above 20 percent reactor power. Also, Work Authorization (WA) 01151611 was completed in October 1996 to reset the default value of the Aztilt to 0.0. This will cause an alarm in the control room if the Aztilt values have not been updated.

This licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy. Specifically, the violation was identified by the licensee, was not willful, actions taken as a result of a previous violation should not have corrected this problem, and appropriate corrective actions were completed by the licensee (50-382/9728-01).

08.2 (Closed) LER 50-382/97-022: Positive Reactivity Addition in Violation of TS 3.7.5.2.b

On June 14, 1997, during Refueling Outage 8, Mode 5, the plant was in a TS action statement that prohibited positive reactivity changes. At this time, reactor cooling system boron concentration was 2290 part per million and the refueling water storage pool was 2266 part per million. Operations performed a makeup to the reactor cooling system from the refueling water storage pool, which constituted a positive reactivity addition that was prohibited by TS.

The inspector reviewed the root cause of the event and the proposed corrective actions and concluded that the issue was being appropriately addressed. This licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy. Specifically, the violation was identified by the licensee, was not willful, actions taken as a result of a previous violation should not have corrected this problem, and appropriate corrective actions were completed by the licensee (50-382/9728-02).

II. Maintenance

M1 Conduct of Maintenance (61726, 62707)

M1.1 General Comments

The inspector observed the following surveillance activity:

- * OP-903-005 CEA Operability Check

In addition, the inspector observed portions of the following maintenance activities in accordance with the listed WA:

- * WA 01165281 Ultrasonic Test and Venting Reactor Building Penetration No. 39
- * WA 01166203 Water Chiller WC-1 (3A-5A) Compressor Postmaintenance Test Following Reattachment of Vane Controller Idler Arm
- * WA 01166855 Troubleshoot Low Position Indication on CEA-10

M1.2 CEA Operability Check

a. Inspection Scope (61726)

The inspector reviewed the surveillance procedure, observed licensed operators performing the surveillance, reviewed the surveillance data, and verified that results conformed with TS requirements.

b. Observations and Findings

On January 22, 1998, the inspector observed the operators during the prejob briefing. Instructions from the control room supervisor were detailed and clear. The lengthy surveillance required full attention of the two reactor operators and the control room supervisor. An additional operator was assigned to operate the remainder of the control room with oversight by the Shift Superintendent. Breaks were appropriately taken to keep the operators focused on the surveillance. Communications were three-way and effective. The inspector noted continual use of self-checking and peer-checking techniques. Overall conduct of the surveillance was very good.

The inspector reviewed the surveillance procedure and associated TS. No discrepancies or inconsistencies were identified. The inspector reviewed the test data and found that data was accurate and complete. Test results had been appropriately reviewed and verified. TS requirements for CEA position had been met.

c. Conclusions

The surveillance was performed in a professional manner in accordance with the appropriate procedures and received good supervisory oversight.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Failure of Manual Actuator for Component Cooling Water (CCW) Valve CC-177B

a. Inspection Scope (52707)

The inspector evaluated the material condition of the CCW manual valve actuators associated with the ultimate heat sink.

b. Observations and Findings

On January 5, 1998, while performing Procedure OP-903-118, "Primary Auxiliaries Quarterly IST Valve Tests," the operator found that Valve CC-177B could not be closed using reasonable force. This valve provided discharge isolation capabilities for Dry Cooling Tower Bundle 9. Train B of the CCW system was declared inoperable in accordance with the appropriate TS. On January 6, the valve actuator was replaced by a new Model 2KE Kenneth Elliott actuator from the store room. The valve moved freely upon replacing the actuator.

The inspector observed disassembly of the faulty actuator. The actuator appeared heavily rusted in some areas, although, when the side plate was removed, there was no visible damage to the worm gear or bull gear. With the gears removed, the handwheel shaft was still binding in the actuator housing and could not be rotated with reasonable force.

The Kenneth Elliott valve actuators are used throughout the CCW and auxiliary component cooling water systems. The dry cooling tower fan cooling bundles (10 in each train) each have an inlet and outlet isolation valve equipped with the same type of actuator. The inspector evaluated the other valve actuators in the CCW and auxiliary component cooling water systems that are exposed to extreme environmental conditions. Many of the actuators of this type exhibited some degradation (i.e., rust, seepage around seams, cracked housings, cracked hand wheels, etc.). All other valves in the dry cooling tower area had been operated satisfactorily. In general, the material condition of these valve actuators was poor.

Additional inspection related to the use of these valve actuators in an adverse environment and will be documented in NRC Inspection Report 50-382/98-02.

c. Conclusions

Material condition of the manual valve actuators inspected in the ultimate heat sink area was poor.

M3 Maintenance Procedures and Documentation

M3.1 I&C Troubleshooting of CEA-10 Position Indication

a. Inspection Scope (62/07)

The inspector reviewed the work package, observed I&C technicians during portions of the troubleshooting, and observed interactions between the technicians and operators.

b. Observations and Findings

On January 21, 1998, I&C technicians were troubleshooting CEA-10 position indication in accordance with WA 1166865, in response to CR 98-0077. The CEA-10 position indication was 2.4 inches lower than any other assembly in the CEA group. This position was well within the group deviation limits required by TS 3.1.3.1, which states that each CEA of a given group must be within 7 inches of all other CEA in its group. The I&C technicians originally took voltage readings on CEA-10 indication and found that the voltage reading was not steady and appeared to drop when the meter was placed across the terminals. While taking the voltage readings, trip indication was received on Core Protection Calculator (CPC) B and the indication immediately cleared. This prompted the writing of CR 98-0077.

This inspector again observed a spurious trip of CPC B when the technicians checked the voltage for CEA-10. This time a voltage drop was not observed. The inspector verified that the voltmeter was checked by the measuring and test equipment laboratory and no problems were identified. The I&C technicians requested that the Shift Superintendent give them permission to try the voltage reading on a different CEA to see if the same problem occurred. The inspector asked if this action was within the scope of the WA and if they had discussed the action with their first line supervisor. The action was not in the WA scope nor had they contacted their supervisor. The Shift Superintendent halted the work activity until the issue was appropriately resolved.

The WA was completed without changing the scope. The technicians lifted, inspected, and relanded the positive lead for the CEA. Position indication for CEA-10 returned to normal for the CEAs in that group. The technicians speculated that an oxide film had developed on that terminal, which had increased the resistance, and was displaced when the terminal was relanded. The reason for the spurious trip of CPC B could not be determined and was entered as another data point in an ongoing investigation of spurious trips of the CPCs.

c. Conclusions

I&C technicians attempted to expand the scope of their WA without appropriate authorization.

M8 Miscellaneous Maintenance Issues (92902)

- M8.1 (Closed) Unresolved Item 50-382/9702-02: Adequacy of Vacuum Fill Procedure to Meet TS Surveillance Requirement 4.5.2.j (formerly TS Section 4.4.2.j)

This issue involved a concern regarding the licensee's ability to comply with TS Surveillance Requirement 4.5.2.j, which requires that the emergency core cooling system (ECCS) be maintained full of water.

The inspector reviewed the results of the special test performed under WA 01156545. The test was completed satisfactorily on February 22, 1997. As a result, the methodology for venting the high points in the ECCS were incorporated into Procedure OP-903-026, "Emergency Core Cooling System Valve Lineup Verification." This procedure required ECCS high point venting at least once every 31 days.

The inspector reviewed the licensee efforts to ensure that routine venting of the ECCS high points maintained the system in a filled condition. The inspector concluded that the procedure was adequate.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

- R1.1 Response to Spill in Spent Resin Tank (SRT) Pump Room

a. Inspection Scope (71750)

The inspector performed an in-plant inspection to verify that the resin spill was contained.

b. Observations and Findings

On December 26, 1997, during a routine short cycle recirculation of the SRT in accordance with Procedure OP-007-005, "Resin Waste Management," a radwaste technician noted a decrease in differential pressure across the spent resin transfer pump. He stopped the pump and returned the valve alignment to normal. A radiation protection technician stationed in the vicinity of the SRT pump room reported that water and resin were observed on the floor in the pump room.

The inspector verified that immediate actions were taken by the radiation protection technicians to ensure that the resin was contained within the SRT and transfer pump rooms. Air samples were taken to ensure that no airborne activity resulted. Radiation

doses to the initial responders were below the dose limits. The SRT access door had been locked and appropriately posted. At the end of this inspection, the licensee was in the process of formulating a plan to clean up the resin in the room.

Cleanup of the resin in the SRT pump room will be monitored by the NRC and reported at a later date.

P5 Staff Training and Qualification in Emergency Planning

P5.1 Review of Emergency Response Organization; Training During Limited Control Room Envelope Occupancy

a. Inspection Scope (71750)

The inspector reviewed the emergency response procedures and interviewed members of the emergency response organization to verify training on appropriate response during periods of limited control room envelope access.

b. Observations and Findings

On January 19, 1998, the control room heating, ventilation, and air conditioning normal intake duct, HVC-101, failed its local leak rate test. The system was declared inoperable and the control room envelope was placed in the isolate mode. In accordance with Procedure OP-100-014, "Technical Specification and Technical Requirements Compliance," Section 6.6, Specific System Guidelines, control room access was limited to 16 people at any one time when the control room envelope was isolated.

The inspector performed a review to determine how the TSC could be manned since the TSC was located inside the control room envelope. The inspector found that the emergency response procedures contained provisions for directing the TSC staff to the alternate TSC, if control room envelope access was limited. However, the inspector also determined that TSC members had not been specifically advised that the control room access was restricted at the time the control room was isolated. This situation could have resulted in TSC responders, on site during normal work hours, responding directly to the TSC upon paging system announcement of an event declaration. This could have resulted in unnecessary confusion or endangerment to TSC responders.

The inspector discussed these observations with the General Manager, Plant Operations, who reacted the Emergency Planning Manager to notify all TSC responders that control room access was restricted and that they should respond to the alternate TSC. When repairs to HVC-101 were completed and the control room access restriction lifted, the Emergency Planning Manager notified the TSC responders that access to the normal TSC was available.

A plan of action to remove the 16 person limit on the control room when in isolate has been escalated by the licensee. The inspector determined that interim actions to man the backup TSC were in effect and training had been received prior to this inspection.

c. Conclusions

The provisions for directing TSC responders to the alternate TSC when control room access is restricted was proceduralized and training was completed. However, TSC responders had not been specifically notified that the control room access had been restricted for an indefinite time for maintenance.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management on February 5, 1998. 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.

ATTACHMENT
SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

F. J. Drummond, Director Site Support
C. M. Dugger, Vice-President, Operations
T. J. Gaudet, Manager, Licensing
E. C. Ewing, Director, Nuclear Safety & Regulatory Affairs
T. R. Leonard, General Manager, Plant Operations
D. C. Matheny, Manager, Operations
G. D. Pierce, Director of Quality
D. W. Vinci, Superintendent, System Engineering
A. J. Wrape, Director, Design Engineering

INSPECTION PROCEDURES USED

61726	Surveillance Observation
62707	Maintenance Observation
71707	Operations
71750	Plant Support Activities
92901	Followup - Operations
92902	Followup - Maintenance

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-382/9728-01	NCV	COLSS not monitoring Aztlt due to constants not being loaded (Section O8.1).
J-382/9728-02	NCV	Positive reactivity addition in violation of TS 3.7.6.2.b (Section O8.2).

Closed

50-382/96-010	LER	COLSS not monitoring Aztilt due to constants not being loaded (Section O8.1).
50-382/9728-01	NCV	COLSS not monitoring Aztilt due to constants not being loaded (Section O8.1).
50-382/97-022	LER	Positive reactivity addition in violation of TS 3.7.6.2.b (Section O8.2).
50-382/9728-02	NCV	Positive reactivity addition in violation of TS 3.7.6.2.b (Section O8.2).
50-382/9702-02	URI	Adequacy of vacuum fill procedure to meet TS Surveillance Requirement 4.5.2.j (formerly TS Section 4.4.2.j) (Section M8.1).

LIST OF ACRONYMS USED

CCW	component cooling water
CEA	control element assembly
COLSS	core operating limits supervisory system
CPC	core protection calculator
ECCS	emergency core cooling system
EDG	emergency diesel generator
I&C	instrumentation and control
LER	licensee event report
NRC	Nuclear Regulatory Commission
SRT	spent resin tank
TS	Technical Specification
TSC	Technical Support Center
WA	work authorization