

Waterford 3

3Q/2004 Plant Inspection Findings

Initiating Events

G**Significance:** Jun 26, 2004

Identified By: NRC

Item Type: FIN Finding

Improper Maintenance Activities resulting in Plant Down Power

A self-revealing finding was identified involving improper installation of an O-ring for Emergency Header Check Valve EH-1285. This resulted in an unisolable hydraulic fluid leak in the main turbine electro-hydraulic control system. Entergy elected to reduce reactor power to less than 20 percent and manually trip the main turbine on February 14, 2004. This self-revealing finding is greater than minor because it is associated with the initiating event cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operation. The human performance attribute was affected in that the performance deficiency resulted in a perturbation in plant stability by reducing reactor power to less than 20 percent. Although the unisolable hydraulic leak resulted in a plant transient, the finding is of very low safety significance because 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.

Inspection Report# : [2004003\(pdf\)](#)

Mitigating Systems

G**Significance:** Sep 26, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Adequate Environmental Qualification Records

The inspectors identified a noncited violation of 10 CFR 50.49(j) for the failure to maintain an auditable record demonstrating that electric equipment important to safety is environmentally qualified for its intended application. Specifically, it was identified that nonconservative temperature profiles were utilized to calculate the qualified life of ASCO NP8300 series solenoid-operated valves. The finding was more than minor since if left uncorrected it would become a more significant safety concern. Specifically, the failure to maintain electrical equipment in an environmentally qualified configuration could adversely impact the ability of such mitigating equipment to perform its safety function during design-basis accident conditions. This finding was of very low safety significance since additional analysis demonstrated that affected electrical equipment currently installed in the plant was environmentally qualifiable. Therefore, this deficiency did not result in any loss of affected equipment safety function.

Inspection Report# : [2004004\(pdf\)](#)**G****Significance:** Sep 26, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Design Control of Safety Injection Sump Recirculation Piping

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, for the failure to maintain design control of the containment safety injection sump recirculation piping. This deficiency resulted in inappropriately maintaining a section of the piping void of water, potentially affecting the operability of the high-pressure safety injection and containment spray pumps during postulated design-basis accident conditions following a recirculation actuation signal. This finding was more than minor because it potentially affected the mitigating system cornerstone objective of ensuring the capability of the high-pressure safety injection and containment spray systems to perform their design-basis functions. The finding was determined to be of very low safety significance because the design deficiency was confirmed not to result in loss of function per Generic Letter 91-18, Revision 1.

Inspection Report# : [2004004\(pdf\)](#)**G****Significance:** May 21, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Promptly Correct Over-pressure Condition in Main Feed Water Isolation Valve Hydraulic Operating Systems

The team identified a 10 CFR 50, Appendix B, Criterion XVI, noncited violation for situations where the licensee failed to promptly correct conditions adverse to quality associated with the main feed isolation valve hydraulic actuating systems. In two cases, the licensee failed to promptly correct instances where the hydraulic actuator thermal relief valves failed to properly function. Consequently, the hydraulic portion of the valve actuator experienced repetitive over-pressure conditions. In one case, the licensee failed to properly address system operability and, for a two-week period, actual valve operability was unknown. The issue was more than minor because it affected the mitigating systems cornerstone objective to ensure the availability of systems that respond to initiating events. The finding was determined to be of very low risk significance because each issue: was not a design or qualification deficiency; did not result in the loss of a safety system; did not represent an actual loss of a safety function of a single train for greater than its technical specification allowed outage time; did not represent an actual loss of safety function of one or more non-Technical Specification trains of equipment designated as risk significant per 10 CFR 50.65 for greater than 24 hours; and was not potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event. Because the failure to promptly identify and correct the over-pressure condition was of very low safety significance and has been entered into the licensee's corrective action program as condition reports CR-WF3-2004-1533, 1540 and 1551, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2004006\(pdf\)](#)

G

Significance: Mar 23, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Control of the Diesel Generator Fuel Oil Storage Requirements

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, for the failure to maintain design control of the emergency diesel generating (EDG) system fuel oil storage requirements. This failure affected the ability of each emergency diesel generator to provide sufficient fuel oil to support 7 days of continuous diesel generator operations following a loss of offsite power and a design-bases accident.

This finding was greater than minor because it affected the mitigating systems cornerstone objective of ensuring the capability of emergency ac power to respond to initiating events to prevent undesirable consequences. This finding was evaluated using NRC Manual Chapter 0609, Significance Determination Process, Phase 1 worksheet under the mitigating systems cornerstone. The finding was determined to be of very low safety significance because the design deficiency was confirmed not to result in a loss of function per Generic Letter 91-18, Revision 1.

Inspection Report# : [2004002\(pdf\)](#)

G

Significance: Mar 23, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Promptly Identify and Correct EDG Loading and Fuel Oil Consumption Analysis Deiciencies

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to promptly identify and correct a condition adverse to quality. Specifically, the licensee inappropriately closed a corrective action requiring revisions to the EDG Loading and Fuel Oil Consumption analysis. The failure to adequately complete this corrective action resulted in the failure to maintain design control of the EDG fuel oil storage inventory requirements to ensure a 7-day post accident fuel oil inventory. This finding was greater than minor because it affected the mitigating systems cornerstone objective of ensuring the capability of emergency ac power to respond to initiating events to prevent undesirable consequences. This finding was evaluated using NRC Manual Chapter 0609, Significance Determination Process, Phase 1 worksheet under the mitigating systems cornerstone. The finding was determined to be of very low safety significance because the design deficiency was confirmed not to result in a loss of function per Generic Letter 91-18, Revision 1.

Inspection Report# : [2004002\(pdf\)](#)

W

Significance: Jan 05, 2004

Identified By: NRC

Item Type: VIO Violation

Failure to establish appropriate instructions and implement those instructions

Contrary to the requirements of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings, which states, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, and drawings, during the overhaul of Train A emergency diesel generator in May 2003, the licensee failed to establish adequate instructions to ensure proper installation of the fuel supply line of Train A emergency diesel generator. This failure resulted in uneven and excessive scoring of the tubing that ultimately led to a complete 360 degree failure of the fuel supply line on September 29, 2003, during a monthly surveillance test.

Inspection Report# : [2003007\(pdf\)](#)

Inspection Report# : [2004008\(pdf\)](#)

Significance:  Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Ineffective Corrective Actions to Prevent Recurrence of Voiding Conditions

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to establish adequate corrective actions to prevent recurrence of voiding conditions affecting the operability of the low pressure safety injection system following shutdown cooling operations. This finding is greater than minor because it affected the mitigating system objective to ensure the reliability and availability of the low pressure safety injection system to respond to an initiating event. The problem if left uncorrected would become a more significant safety concern. The significance of this finding was determined to be of very low safety significance because low pressure safety injection Train B was inoperable for less than the Technical Specification allowed outage time and Train A was determined to be degraded but operable in accordance with Generic Letter 91-18 guidance.

Inspection Report# : [2003007\(pdf\)](#)

Barrier Integrity

Significance:  Sep 26, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Prevent Recurrence of Main Steam Isolation Valve Failures

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for failure to determine the cause and preclude recurrence of main steam isolation solenoid-operated dump valve failures. This failure affected the primary containment isolation function for the main steam system isolation valves. The primary cause of this finding was related to the crosscutting area of problem identification and resolution. The finding was greater than minor because if left uncorrected the finding could become a more safety significant concern. The finding was only of very low safety significance because it did not represent an actual reduction of the atmospheric pressure control function of the reactor containment, it did not result in an actual open pathway affecting the physical integrity of reactor containment, and the main steam isolation valves were inoperable for less time than the allowed Technical Specification outage time. The valve was repaired and returned to service.

Inspection Report# : [2004004\(pdf\)](#)

Significance:  Aug 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Maintenance Instructions Affecting the Emergency Feedwater System

A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, was identified when the valve failed in the open position. The failure resulted from inappropriate work instructions for replacing the actuator diaphragm on the emergency feedwater to Steam Generator 1 backup isolation valve. As a result, the diaphragm was installed incorrectly, resulting in the failure on June 14, 2004. The finding was greater than minor because it affected the operability of a containment isolation valve and the availability of the emergency feedwater system, a mitigating system. The finding was of very low safety significance because a second isolation valve was available and could have performed the isolation function. The valve was promptly repaired and a condition report was initiated. The emergency feedwater system was inoperable for less than the allowed Technical Specification outage time.

Inspection Report# : [2004008\(pdf\)](#)

Significance:  Aug 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action Affecting Main Feedwater Isolation Valve

A noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, was identified for the failure to take adequate corrective action to ensure that the torque applied to the flow control valve for Accumulator B of main feedwater isolation Valve No. 1 was sufficient to prevent an O-ring from extruding, resulting in a loss of system hydraulic fluid and rendering the valve inoperable on June 20, 2004. The primary cause of the finding was related to the crosscutting area of problem identification and resolution. The finding was greater than minor because it affected the reactor safety barrier cornerstone attribute for maintaining functionality of the containment boundary. The main feedwater isolation valve was repaired within the Technical Specification allowed outage time and a condition report was initiated. This finding was of very low safety significance because it did not result in an actual open pathway affecting the physical integrity of reactor containment and the main feedwater isolation valve was inoperable for less time than the allowed by the Technical Specification outage time.

Inspection Report# : [2004008\(pdf\)](#)

Significance:  May 21, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Promptly Identify Inappropriate Assumption and Correct Control Room Operator Dose Analysis

The team identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI, for the failure to promptly identify and correct a condition adverse to quality. Specifically, on multiple occasions the licensee failed to identify and correct an inappropriate value of the unfiltered inleakage parameter used to calculate the control room operator dose for design basis accident conditions involving radiological releases. This failure resulted in significantly underestimating the actual dose to operators. This finding was greater than minor because it affected the barrier integrity cornerstone objective related to design control of the control room envelope and was determined to be of very low safety significance because the deficiency only affected the radiological barrier function provided for the control room. Because the failure to promptly identify and correct the analysis was of very low safety significance and has been entered into the licensee's corrective action program as Condition Report CR-WF3-2004-1403, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2004006\(pdf\)](#)

Significance:  May 21, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Promptly Correct a Known Deficient Condition Involving the Failure to Account for Instrument Uncertainty to Satisfy Technical Specification Surveillance Requirement

The team identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI, for the failure to promptly identify and correct a condition adverse to quality. Specifically, on multiple occasions the licensee failed to correct a known deficient condition involving the failure to account for instrument uncertainty to satisfy Technical Specification Surveillance Requirement 4.7.6.5.a. This failure potentially affects the ability of the control room envelope to perform its design function with respect to protecting operators from postulated design basis accidents resulting in radiological releases. This finding was greater than minor because it affected the barrier integrity cornerstone objective related to maintaining the barrier function of the control room envelope. The finding was determined to be of very low safety significance because the deficiency only affected the radiological barrier function provided for the control room. Because the failure to promptly identify and correct the analysis was of very low safety significance and has been entered into the licensee's corrective action program as condition report CR-WF3-2004-1561, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2004006\(pdf\)](#)

Significance:  Mar 23, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate Corrective Action Affecting Main Feedwater Isolation Valve

A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI was identified for the failure to promptly identify and correct a condition adverse to quality. Specifically, Entergy failed to replace known age-degraded O-rings affecting the main feedwater isolation valves in the year 2000 resulting in O-ring failure and inoperability of the Train A feedwater isolation valve on December 27, 2003. The finding was greater than minor because it affected the reactor safety barrier integrity cornerstone for providing reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding was only of very low safety significance because it did not represent an actual reduction of the atmospheric pressure control function of the reactor containment; it did not result in an actual open pathway affecting the physical integrity of reactor containment; and the main feedwater isolation valves were inoperable for less time than the allowed Technical Specification outage time.

Inspection Report# : [2004002\(pdf\)](#)

Significance:  Mar 23, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate Maintenance Instruction Affecting Main Feedwater Isolation Valve

A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure to establish appropriate instructions for corrective maintenance activities on Train A main feedwater isolation valve on December 27, 2003. This resulted in the failure to establish appropriate torque specifications to ensure adequate O-ring compression that ultimately led to an O-ring failure and inoperability of the isolation valve on January 3, 2004. The finding was greater than minor because it affected the reactor safety barrier integrity cornerstone for providing reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding was only of very low safety significance because it did not represent an actual reduction of the atmospheric pressure control function of the reactor containment; it did not result in an actual open pathway affecting the physical integrity

of reactor containment; and the main feedwater isolation valves were inoperable for less time than the allowed Technical Specification outage time.

Inspection Report# : [2004002\(pdf\)](#)

Significance:  Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Test Controls of MSIVs

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Section XI, "Test Control," for the failure to establish adequate test controls for leak testing main steam isolation Valves 1 and 2. This performance deficiency contributed to both valves being declared inoperable due to system leaks creating a low pressure condition in the valve actuating systems. This finding is more than minor because it affected the Barrier Integrity Cornerstone objective of providing reasonable assurance of the functionality of containment. The finding was only of very low safety significance because it did not represent an actual reduction of the atmospheric pressure control function of the reactor containment, it did not result in an actual open pathway affecting the physical integrity of reactor containment, and the main steam isolation valves were inoperable for less time than the allowed Technical Specification outage time.

Inspection Report# : [2003007\(pdf\)](#)

Significance:  Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Ineffective Corrective Actions to Prevent Recurrence of PWSCC of Alloy 600 Material

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to implement effective corrective actions resulting in recurrences of pressure boundary leakage due to primary water stress corrosion cracking of Alloy 600 reactor coolant system nozzles. This finding was greater than minor because it affected the reactor safety barrier integrity cornerstone objective for providing reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents or events. Using NRC Manual Chapter 0609 Significance determination process Phase 1 Screening Worksheet this performance deficiency affected the reactor coolant system barrier function requiring a Phase 2 analysis. The results of the Phase 2 and 3 analysis determined that this finding was of very low safety significance based on the cracks being axial in nature (does not contribute substantially to a loss of coolant accident) and the leaks resulted in a build up of only minor boric acid residue indicative of only trace amounts of through wall leakage. The leak rates identified were well within the capacity of a single charging pump.

Inspection Report# : [2003007\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Oct 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Barricade a High Radiation Area

The inspector identified a noncited violation of Technical Specification 6.12.1 because Entergy failed to barricade a high radiation area. Specifically, on October 27, 2003, the inspector observed that the high radiation area rope barricading the regenerative heat exchanger room was stretched across the entrance way at a height of approximately 79 inches, which would not obstruct the entry of station workers. General area radiation levels within the room were as high as 420 millirem per hour. The finding is in Entergy's corrective action program as Condition Report CR-WF3-2003-03164. The finding is greater than minor because it affected the Occupational Radiation Safety cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation and the finding is associated with the cornerstone attribute (Program & Process). The finding involved an individual's potential for unplanned or unintended dose. When processed through the Occupational Radiation Safety Significance Determination Process the finding was determined to be of very low safety significance because the finding was not associated with ALARA planning or work controls, there was no overexposure or a substantial potential for overexposure, and the ability to assess dose was not compromised.

Inspection Report# : [2003007\(pdf\)](#)

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance: N/A May 21, 2004

Identified By: NRC

Item Type: FIN Finding

Identification and Resolution of Problems

The team reviewed approximately 135 corrective action program documents, apparent and root cause analyses and plant procedures for the identification and resolution of problems. Based on this review, the team found that the licensee's process to identify, prioritize, evaluate, and correct problems was generally effective; thresholds for identifying issues remained appropriately low and, in most cases, corrective actions were adequate to address conditions adverse to quality. However, a number of issues were identified associated with the proper identification, evaluation and correction of degraded conditions in the plant. Most of these issues were identified when the team reviewed corrective actions associated with longstanding degraded conditions and design issues at Waterford 3, which had cross-cutting aspects in the area of problem identification and resolution. The team concluded that a positive safety-conscience work environment exists at Waterford 3. The team determined that employees and contractors feel free to raise safety concerns to their supervision or bring concerns to the employees concern program.

Inspection Report# : [2004006\(pdf\)](#)

Last modified : December 29, 2004