

## Waterford 3

### 3Q/2013 Plant Inspection Findings

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### Initiating Events

**Significance:** G Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to provide adequate post modification testing instructions for vibration monitoring on the feedwater piping system following steam generator replacement**

The inspectors reviewed a self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, because the licensee did not provide adequate post modification testing instructions for activities affecting quality to the circumstances that included appropriate acceptance criteria for determining that important activities have been satisfactorily accomplished. Specifically, the licensee did not provide adequate post modification testing instructions for vibration monitoring of the feedwater piping system that included appropriate acceptance criteria following the installation of the new replacement steam generators. As a result, the plant experienced an automatic reactor trip and a subsequent down power due to an increase in vibrations on the feedwater piping system without appropriate acceptance criteria and monitoring during power ascension. The licensee entered this issue into their corrective action program as CR-WF3-2013-0445. The immediate corrective actions taken to restore compliance included the implementation of a revised vibration-monitoring plan to include appropriate acceptance criteria and the development of engineering changes to mitigate vibration effects on the feedwater piping system.

The failure to provide adequate post modification testing instructions for vibration monitoring of feedwater piping system following steam generator replacement was a performance deficiency. Specifically, the licensee did not provide adequate post modification testing instructions for vibration monitoring on the feedwater piping system. The performance deficiency was more than minor because it was associated with the design control attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. The inspectors used the NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," to evaluate this issue. The inspectors determined that the finding was of very low safety significance (Green) because the transient initiator did not contribute to the likelihood that mitigation equipment or functions would not be available. The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the operating experience component of the problem identification and resolution area in that the licensee did not implement operating experience through changes to station equipment to support plant safety [P.2.b].

Inspection Report# : [2013003](#) (*pdf*)

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### Mitigating Systems

**Significance:** G Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to implement fire protection program procedure requirements when securing from a fire watch**

The inspectors identified a non-cited violation of Waterford's Facility Operating License Number NPF-38, License Condition 2.C.9, because the licensee did not implement fire protection procedure FP-001-014, "Duties of a Fire Watch". Specifically, the licensee's fire watch personnel did not implement section 6.5 of FP-001-014 to remove firefighting equipment from work areas when securing from a fire watch. As a result, multiple undercharged fire extinguishers were left in the fire area. The licensee entered this condition into their corrective action program as CR-WF3-2013-03398 and CR-WF3-2013-03523 for resolution. The immediate corrective actions taken to restore compliance included the removal of all undercharged fire watch extinguishers from deactivated posts and returning them to their proper storage location.

The failure to implement a fire protection program procedure was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external factors (i.e., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to remove undercharged fire extinguishers from work areas that contained safe shutdown equipment could hinder responses to fires in the fire area. The inspectors used NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," to evaluate this issue. The initial screening directed the inspectors to use Appendix F "Fire Protection Significance Determination Process" to determine the significance of the finding. The inspectors determined that the finding had a low degradation rating because it reflected a fire protection program element whose performance and reliability would be minimally impacted. Specifically, in all cases identified, there were permanent fully charged portable fire extinguishers of the proper type nearby. Therefore, the finding was of very low safety significance (Green). The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the work practices component of the human performance area in that the licensee did not ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported [H.4(c)].

Inspection Report# : [2013004](#) (*pdf*)

**Significance:**  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to develop preventive maintenance tasks to inspect essential chiller piping for corrosion**

A self-revealing non-cited violation of Waterford Steam Electric Station, Unit 3, Technical Specification 6.8.1.a, occurred because Waterford did not establish preventive maintenance schedules to inspect the safety-related essential chiller water system piping for corrosion. Specifically, the licensee did not establish preventive maintenance task that would inspect the piping associated with the essential chillers. As a result, essential chiller B experienced a through wall piping leak that rendered the chiller inoperable. The licensee entered this condition into their corrective action program as CR-WF3-2013-2876. The immediate corrective actions taken to restore compliance included the replacement of the corroded length of piping alone with an extent of condition walkdown and inspection of the other two remaining chillers.

The failure to establish preventive maintenance schedules to inspect safety-related essential chiller water system piping for corrosion was a performance deficiency. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating System Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of the chilled water system, which respond to initiating events to prevent undesirable consequences. Specifically, the essential chilled water system removes heat loads from selected safety-related air handling units during a design basis accident or transient. The inspectors used NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "Significance Determination Process (SDP) for Findings At-Power," to evaluate this issue. The inspectors determined that the finding was of very low safety significance (Green) because it did not affect the design or qualification of a mitigating structure, system, or component (SSC), represent a loss of system function, or an actual loss of function of

at least a single train for greater than its Technical Specification's allowed outage time, and did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the corrective action program component of the problem identification and resolution area in that the licensee did not implement operating experience through changes to station equipment to support plant safety [P.2.b].

Inspection Report# : [2013004](#) (*pdf*)

**Significance:**  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to accomplish activities affecting quality on a degraded safety-related solenoid valve in accordance with procedure requirements**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because the licensee did not accomplish activities affecting quality on a degraded safety-related train B component cooling water (CCW) bypass valve (CC-134B) in accordance with maintenance procedure EN-MA-101, "Fundamentals of Maintenance". Specifically, the licensee did not control and perform test on a leaking safety-related bypass valve (CC-134B) after maintenance personnel removed the degraded equipment from service as required by Section 5.10 of EN-MA-101. As a result, the licensee could not characterize and determine the cause of the leakage for the safety-related valve. The licensee entered this condition into their corrective action program as CR-WF3-2012-05991, CR-WF3-2012-06288, and CR-WF3-2013-04047. The immediate corrective actions taken to restore compliance included the installation of a new valve and debriefing personnel about controlling equipment removed from service when combining preventative and corrective maintenance tasks in one work order.

The failure to control failed equipment removed from the plant to determine the cause in accordance with maintenance procedure requirements was a performance deficiency. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating System Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the degraded condition challenged the safety function of the valve (CC-134B) to limit the loss of CCW through damaged portions of the dry cooling tower fans following a tornado-generated missile strike. The inspectors used the NRC Inspection Manual 0609, Attachment 4, "Initial Characterization of Findings," to evaluate this issue. The finding required a detailed analysis because it was potentially risk significant for an external event (tornado). Therefore, the senior reactor analyst (SRA) performed a bounding detailed risk evaluation. The SRA determined that the finding was of very low safety significance (Green). The bounding change to the core damage frequency was less than  $3E-7$ /year. The finding was not significant with respect to the large early release frequency. The dominant core damage sequences included tornado induced losses of offsite power, failure of the dry cooling tower pressure boundary, failure to isolate the damaged dry cooling tower, and failure to recover instrument air. The redundant train A component cooling water system combined with the tornado frequency helped to reduce the risk exposure. The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the work control component of the human performance area in that the licensee did not appropriately coordinate work activities by incorporating actions to address the impact of changes to work scope or activity on plant and human performance.

Inspection Report# : [2013004](#) (*pdf*)

**Significance:**  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to identify and correct a loose flapper set screw associated with an emergency feed water flow control valve**

A self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI occurred because the licensee did not promptly identify and correct a condition adverse to quality related to an emergency feedwater (EFW) backup flow control valve (EFW-223A). Specifically, the licensee did not promptly identify and correct a degraded condition associated with a loose flapper set screw internal to the valve. As a result, the valve failed to perform its safety-related close function when called upon after a plant trip. The licensee entered this condition into their corrective action program as CR-WF3-2013-00451. The immediate corrective actions taken to restore compliance included tightening the loose flapper set screw and recalibrating the valve such that it would close on demand.

The failure to promptly identify and correct a loose flapper set screw associated with EFW-223A was a performance deficiency. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the degraded condition challenged the safety function of the valve to prevent feeding a faulted steam generator, and to limit the EFW flow rate injected into the steam generator to minimize the effects of overcooling the reactor coolant system. The inspectors used NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "Significance Determination Process (SDP) for Findings At-Power," to evaluate this issue. The inspectors determined that the finding was of very low safety significance (Green) because it did not affect the design or qualification of a mitigating SSC, did not represent a loss of system or function, did not represent an actual loss of function of at least a single train for greater than its Technical Specification (TS) allowed outage time, and did not represent an actual loss of function of one or more non TS trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the work practices component of the human performance area in that the licensee did not effectively communicate expectations regarding procedural compliance.

Inspection Report# : [2013004](#) (*pdf*)

**Significance:**  Jun 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to provide adequate design control measures for verifying or checking the adequacy of the effects of a PMP flooding event on the reactor auxiliary building roof areas that contained safety-rea**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, because the licensee did not provide design control measures for verifying or checking the adequacy of the features designed to withstand the effects of a probable maximum precipitation (PMP) flooding event on the reactor auxiliary building (RAB) roof areas. Specifically, the licensee did not provide an analysis to demonstrate that adequate flood protection existed from the effects of a PMP flooding event on safety-related components and electrical equipment located on the roof of the RAB in the main steam isolation valve (MSIV) wing areas. As a result, the licensee did not perform an analysis to determine if expected ponding levels from a PMP flooding event would challenge safety-related components and electrical equipment such as the emergency feedwater flow control and isolation valves and cables, main steam isolation valves and cables, atmospheric dump valves, and back-up nitrogen accumulator components. The licensee entered this issue into their corrective action program as CR-WF3-2012-7520. The immediate corrective actions taken to restore compliance included the performance of a preliminary analysis to show that the installed scuppers and roof drains have margin to protect against a local PMP flooding event and that the ponding depth would have little or no affect on the safety-related equipment and cables located in the MSIV wing areas.

The failure to provide design control measures for verifying or checking the adequacy of the features designed to withstand the effects of a local PMP on the RAB roof areas was a performance deficiency. The performance deficiency was more than minor because it was associated with the design control attribute of the Mitigating System cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the safety-related equipment located on the RAB roof in the MSIV wing areas are required to safely shutdown and maintain the reactor in a cold shutdown condition following accidents and anticipated operational occurrences. The inspectors used the NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings" and Appendix A, "The Significance Determination Process for Findings At-Power," to evaluate this issue. The inspectors determined that the finding was of very low safety significance (Green) because it did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the corrective action program component of the problem identification and resolution area in that the licensee did not identify potential flooding issues completely, accurately, and in a timely manner commensurate with their safety significance [P.1.a]

Inspection Report# : [2013003](#) (*pdf*)

**Significance:** N/A Jun 30, 2013

Identified By: NRC

Item Type: VIO Violation

**Failure to submit a licensee event report within 60 days of discovery of a condition that affected the manual hand-wheel operation of safety related air operated valves following a loss of their corr**

The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.73(a)(1) because the licensee did not submit a Licensee Event Report (LER) in a timely manner after the discovery of a reportable event. Specifically, the licensee failed to submit a required LER within 60 days after the discovery of a condition that affected the manual hand-wheel operation of safety related air operated valves following a loss of their corresponding back-up nitrogen accumulators. The licensee determined that the manual hand-wheel function on the essential chiller and emergency feedwater isolation and backup flow control valves did not work. The licensee was aware of the condition that existed but did not adequately evaluate the condition as a part of their reportability review. The licensee entered this issue into their corrective action program as CR-WF3-2013-2564. The immediate corrective actions taken to restore compliance included a new reportability review of the condition and the development of an LER.

The failure to submit a required LER within 60 days after discovery of a condition that required a report was a violation of NRC requirements. The inspectors determined that this violation was also a performance deficiency. However, the inspectors determined that the performance deficiency was minor. The inspectors considered this issue to be within the traditional enforcement process because it had the potential to impact the NRC's ability to perform its regulatory oversight function. The inspectors used the NRC Enforcement Policy to evaluate the significance of this violation. The inspectors determined that the violation was a Severity Level IV because it was similar to an example provided in Section 6.9 of the NRC Enforcement Policy. The inspectors did not assign a cross-cutting aspect to this non-cited violation because there was no finding associated with this traditional enforcement violation.

Inspection Report# : [2013003](#) (*pdf*)

**Significance:**  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Identify and Control Potential Tornado Borne Missile Hazards**

The inspectors identified a Green, NCV of Technical Specification 6.8.1.a for failure to follow Procedure OP-901-521, "Severe Weather and Flooding," Revision 307. Specifically, on February 25, 2013, the licensee entered the off-normal procedure due to a tornado watch and failed to identify and control potential missile hazards. The licensee has entered this issue into the corrective action program as Condition Report CR-WF3-2013-1590, and is planning corrective actions to determine criteria to identify missile hazards needing controls during severe weather events.

The inspectors concluded that the failure to assess and control potential missile hazards was a performance deficiency. The inspectors concluded the performance deficiency is more than minor, therefore a finding, because it adversely affected the protection against external factors attribute of the Mitigating Systems Cornerstone and its objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The inspectors determined that all questions in Exhibit 4. A. could be answered no, and as such the issue was of very low safety significance (Green). The inspectors determined this finding has a cross-cutting aspect in the area of human performance associated with the resources component because the licensee failed to include qualitative or quantitative criteria for identification and control of potential missile hazards [H.2(c)].

Inspection Report# : [2013002](#) (*pdf*)

**Significance:**  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Perform an Adequate Operability Determination for Nitrogen Leak in MSIV**

The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion V "Instructions, Procedures, and Drawings," for the failure of the licensee to accomplish activities affecting quality in accordance with written procedures. Specifically, operations personnel failed to follow Procedure EN-OP-104, "Operability Determinations," and declared main steam isolation valve 1 operable with a through-wall leak on an ASME Class 3 system, despite procedural guidance to the contrary. The licensee has entered this issue into the corrective action program as CR-WF3-2013-1284, and has implemented an ASME Code leak repair as corrective action to restore the degraded condition and reinforced expectations of procedural use and adherence with operations personnel.

The inspectors concluded that the failure of operations personnel to follow procedures was a performance deficiency. The inspectors determined that the performance deficiency is more than minor, therefore a finding, because it adversely affected the equipment performance attribute of the Mitigating Systems Cornerstone and its objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of the issue under the Significance Determination Process, as defined in Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The inspectors determined that all questions in Exhibit 2, A. could be answered no, and as such the issue was of very low safety significance (Green). The inspectors determined this finding has a cross-cutting aspect in the area of human performance associated with the component of decision making because the licensee failed to make conservative assumptions when assessing the source of the nitrogen leak and failed to validate underlying assumptions on subsequent operability reviews [H.1(b)].

Inspection Report# : [2013002](#) (*pdf*)

**Significance:**  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Identify and Perform Testing to Demonstrate Local Manual Operation Action on Safety-Related Air-Operated Valves**

The inspectors identified a NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," because the licensee failed to identify and perform testing on safety-related components to demonstrate that they would perform satisfactorily in service in accordance with requirements contained in applicable design documents. Specifically, the licensee did not identify and perform testing on several safety-related air-operated valves to demonstrate local manual operation in the event their safety-related nitrogen accumulators were exhausted. As a result, the licensee could not demonstrate that the safety-related valves would perform satisfactorily in service in accordance with requirements contained in the updated final safety analysis report (UFSAR) and design calculations. The licensee entered this issue into their corrective action program as CR-WF3-2012-6703. The immediate corrective actions taken to restore compliance included developing a test for the local manual operation for some valves and the installation of a backup air supply to recharge the accumulators for other valves.

The failure to identify and perform testing to demonstrate that safety-related air-operated valves would perform satisfactorily in service in accordance with requirements contained in applicable design documents was a performance deficiency. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors used the NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," to evaluate this issue. The finding required a detailed analysis because it involved a potential loss of a system function of safety related equipment. Therefore, the senior reactor analyst performed a bounding detailed risk evaluation. The analyst determined that the finding was of very low safety significance (Green). The bounding change to the core damage frequency was less than  $4E-8$ /year. The finding was not significant with respect to the large early release frequency. The dominant core damage sequences included losses of offsite power, which result in an early loss of the instrument air compressors. The fact the accumulators would allow continued air operated valve operation for ten or more hours helped to reduce the risk. The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the corrective action program component of the problem identification and resolution area in that the licensee did not thoroughly evaluate problems such that the resolutions address causes and extent of conditions, as necessary [P.1(c)].

Inspection Report# : [2013002](#) (*pdf*)

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to promptly identify and correct the cause of repetitive failures associated with train A component cooling water radiation monitor**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, because the licensee did not promptly identify and correct a condition adverse to quality associated with the train A safety-related component cooling water (CCW) radiation monitor (PRMIR7050A). Specifically, the licensee did not identify and correct the cause of repetitive failures of the train A CCW radiation monitor when the monitor experienced erratic radiation spikes and repeat issues with the detector. As a result, the licensee declared the radiation monitor inoperable on several occasions over a span of nine months. The licensee entered this issue into their corrective action program as CR-WF3-2012-4643. The immediate corrective actions taken to restore compliance included the replacement of all susceptible components of the radiation monitor and other associated equipment. Additionally, the licensee adjusted the low-level discriminator voltage and changed the calibration procedure to align testing with vendor recommendations.

The failure to promptly identify and correct the cause of repetitive failures associated with erratic radiation spikes and

a repeat issue with the radiation monitor detector was a performance deficiency. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating System Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the erratic radiation spikes and issues with the detector challenged the availability and reliability of the train A CCW radiation monitor used to alert operators of radiation leaks from the reactor coolant system. The inspectors used the NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," to evaluate this issue. The inspectors determined that the finding was very low safety significance (Green) because it did not affect the design or qualification of a mitigating SSC, represent a loss of system function, or an actual loss of function of at least a single train for greater than its Tech Spec allowed outage time, and did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the corrective action program component of the problem identification and resolution area in that the licensee did not thoroughly evaluate the problem such that the resolutions address causes and extent of conditions [P.1(c)].

Inspection Report# : [2012005](#) (*pdf*)

**Significance:** G Sep 24, 2012

Identified By: NRC

Item Type: VIO Violation

**Failure to Take Timely Corrective Action to Establish a Basis for Flood Control Measures**

The team identified a cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control", for the failure to establish measures to assure that applicable regulatory requirements and the design basis as defined in 10 CFR 50.2 are correctly translated into procedures. Specifically, the licensee has not determined a basis for the level at which flood control measures are initiated, two years after receiving a non-cited violation for the same deficiency. As an interim compensatory measure for a previous violation of inadequate technical specifications, the licensee modified their flooding procedure to include an action to start shutting flood control doors at a river level of 24 feet instead of 27 feet. The licensee recognized the need to establish a basis for initiating these actions at 24 feet, and issued a corrective action to track completion. The licensee extended the due date several times and had not completed it by the arrival of the inspection team. The inspection team questioned why the licensee had not completed the calculation to justify their basis for their compensatory measures, noting that it had been over two years since the original violation was identified. The inspectors verified through walk-downs, procedure reviews, and historical data that the licensee's use of 24 feet did not represent an immediate operability concern, and that the current river level was sufficiently low to allow time for the licensee to correct the deficiency. This finding was entered into the licensee's corrective action program as condition report CR-WF3-2012-03752.

The failure to complete the corrective action to establish a basis for flood control measures in a timely manner was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection from external events attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to verify through calculations or analysis that the actions taken to secure flood doors could be completed in time to protect safety-related equipment from flooding due to a levee failure. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the issue was determined to affect the Mitigating Systems Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power", the issue was determined to have very low safety significance (Green) because it did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. Specifically, the inspectors confirmed that the licensee could reasonably ensure the flood control doors could perform their safety function. This finding had a cross-cutting aspect in the human performance area, resources component in that the licensee failed to maintain long term plant safety by maintenance of design margins and ensuring engineering

backlogs low enough to support safety [H.2(a)].

Inspection Report# : [2012008](#) (*pdf*)

## Barrier Integrity

**Significance:** N/A Jun 30, 2013

Identified By: NRC

Item Type: VIO Violation

### **Failure to Update Fuel Handling Accident Analysis in the Updated Final Safety Analysis Report**

The inspectors identified a Severity Level IV non-cited violation for the licensee's failure to update the final (updated) safety analysis report in accordance with 10 CFR 50.71(e). Specifically, from July 1981 to April 18, 2013, the licensee failed to update the methodology, the data input, and the resulting limits for the fuel bundle drop accident analysis in the Waterford Steam Electric Station, Unit 3, Updated Final Safety Analysis Report, Section 15.7.3.4, "Design Basis Fuel Handling Accidents." This violation was entered into the licensee's corrective action program as Condition Report CR-WF3-2013-0193.

The failure to update the methodology, the data input to the calculation, and the resulting limits for the fuel bundle drop accident analysis in Section 15.7.3.4 of the Updated Final Safety Analysis Report in accordance with 10 CFR 50.71(e) is a performance deficiency. This performance deficiency was evaluated using traditional enforcement because it has the potential to impact the NRC's ability to perform its regulatory function. The inspectors used the NRC Enforcement Policy to evaluate the significance of this violation. Consistent with the NRC Enforcement Policy, the inspectors determined that the performance deficiency is a Severity Level IV non-cited violation. This non-cited violation had no cross-cutting aspect because there was no finding associated with this traditional enforcement violation.

Inspection Report# : [2013003](#) (*pdf*)

**Significance:**  Jun 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to comply with Action 4 of TS 3.3.1 during shutdown with the protective system trip breakers in the open position for Modes 4 and 5**

The inspectors identified a non-cited violation of Waterford Steam Electric Station, Unit 3, Technical Specification (TS) Limiting Condition of Operation (LCO) 3.3.1 because the licensee did not take action to suspend operations that involved reactivity changes use to accomplish startup activities with only one excore nuclear instrumentation (ENI) logarithmic (log) channel operable. Specifically, the licensee did not take action to suspend operations involving diluted water additions to the volume control tank and temperature increases with a positive moderator temperature coefficient (MTC) without the required number of operable log channels. As a result, the licensee did not comply with Action 4 of TS LCO 3.3.1 because they did not account for temperature increases with a positive MTC within the shutdown margin calculation. This had the potential to affect the available shutdown margin. The licensee entered this issue into their corrective action program as CR-WF3-2013-2166 and CR-WF3-2013-3182. The immediate corrective actions taken to restore compliance included the discontinued use of water additions to the volume control tank and the increase of RCS temperatures with a positive MTC until the licensee's personnel returned an additional log channel to service.

The failure to comply with TS LCO 3.3.1, Action 4, was a performance deficiency. The performance deficiency was

more than minor because it was associated with the configuration control attribute of the barrier integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the LCO for the log power channels ensures that adequate information is available to verify core reactivity conditions while shutdown to minimize the probability of the occurrence of postulated events. The inspectors used Checklist 4 contained in Attachment 1 of the NRC Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process Phase 1 Operational Checklists," to evaluate this finding. The inspectors determined that the finding did not meet the reactivity guidelines because the licensee did not comply with TS LCO 3.3.1, Action 4. The inspectors determined that the finding was of very low safety significance (Green) because it did not require a quantitative assessment and was not similar to any of the examples requiring a phase two or phase three analyses. The inspectors also determined that the licensee maintain the required shutdown margin to preclude inadvertent criticality in the shutdown condition. The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the decision-making component of the human performance area in that the licensee did not make a safety-significant decision using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety was maintained. This included obtaining interdisciplinary input and reviews on safety-significant decisions [H.1.a].

Inspection Report# : [2013003](#) (pdf)

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## Emergency Preparedness

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## Occupational Radiation Safety

**Significance:** G Oct 23, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to implement control measures to ensure that activated materials were not raised above or brought near the surface of the refueling pool, causing a locked high radiation area**

The inspectors reviewed a self-revealing non-cited violation of Technical Specification 6.12.2 which resulted because licensee representatives failed to implement control measures to ensure that activated materials were not raised above or brought near the surface of the refueling pool, causing a locked high radiation area. As immediate corrective action, the workers backed away from the upper guide structure until their dose rate alarms cleared. The upper guide structure lift continued until it was in a safe condition on the stand in the deep end of the refueling pool. Corrective action to prevent recurrence was determined after licensee personnel documented the occurrence in the corrective action program as Condition Report WF3 2012 05571 and performed a root cause evaluation. To address the root cause, the governing procedure will be revised to reflect the establishment of a waterline on the upper guide structure which indicates the highest elevation it can be raised out of the water and maintain an acceptable amount of shielding.

The failure to implement control measures to ensure that activated materials were not raised above or brought near the surface of the refueling pool, causing a locked high radiation area, is a performance deficiency. The performance deficiency is more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation, in that it exposed workers to higher than planned dose rates. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined

the finding had very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure because the inspectors concluded there was no way to construct a scenario in which a minor alteration of circumstances would have resulted in a violation of the Part 20 limits, and (4) the ability to assess dose was not compromised. This finding had a cross-cutting aspect in the human performance area, work control component, in that the licensee did not plan work activities appropriately by incorporating risk insights and job site conditions, such as the effects on job site radiation levels when water shielding was reduced [H.3(a)].

Inspection Report# : [2012005](#) (*pdf*)

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## Public Radiation Safety

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### Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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### Miscellaneous

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