Waterford 3
3Q/2011 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Adequately Implement a Reactor Coolant System Drain Down Procedure
The inspectors documented a self-revealing non-cited violation of Technical Specification 6.8.1.a because the licensee did not adequately implement Operating Procedure OP-001-003, “Reactor Coolant System Drain Down,” during the installation of the incore instrumentation flanges. Specifically, the licensee did not establish a reactor coolant system vent path while maintaining reactor coolant level below 26 feet for the assembly of the incore instrumentation flanges as required by OP-001-003. As a result, the licensee experienced a loss of reactor coolant inventory from three unassembled incore instrumentation flanges, which spilled onto the reactor vessel head insulation and filled the upper annulus cavity of the reactor vessel. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2011-3163 and CR-WF3-2011-3636. The immediate corrective actions included opening the pressurizer spray line vent valve (RC-309) to establish a reactor coolant system vent path.

The finding is more than minor because it is associated with the configuration control attribute of the Initiating Events cornerstone and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors performed the initial significance determination for the failure to adequately implement operating procedures using NRC Inspection Manual 0609, Attachment 0609.04, “Phase 1 – Initial Screening and Characterization of Findings.” The Initial screening directed the inspectors to use Attachment 1 of Appendix G, “Shutdown Operations Significance Determination Process,” based on the conditions of the plant at the time of the event. The inspectors evaluated the significance of the finding and determined that it did not require a quantitative assessment because adequate mitigating equipment remained available and the finding did not constitute a loss of control, as defined in Appendix G. Therefore, the inspectors determined that the finding is of very low safety significance (Green). This finding has a cross-cutting aspect in the work control component of the human performance area because the licensee did not appropriately coordinate work activities in incorporating actions to address the impact of the need to keep personnel apprised of work status, the operational impact of work activities, and plant conditions that may affect work activities [H.3(b)]. (Section 1R20.1)

Inspection Report# : 2011004 *(pdf)*

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide Adequate Testing for a Shutdown Cooling Heat Exchanger Outlet Stop Check Valve
The inspectors documented a self-revealing non-cited violation of 10 CFR 50.55a, “Codes and Standards,” because the licensee did not establish and maintain an adequate testing program for a shutdown cooling heat exchanger outlet stop check valve (CS-117A) in accordance with Mandatory Appendix II, “Check Valve Condition Monitoring Program,” of the American Society of Mechanical Engineers Operation and Maintenance Code 2001 through 2003. Specifically, the licensee did not provide adequate inservice testing to detect degradation of seat leakage on the stop check valve CS-117A. As a result, the operating train of shutdown cooling experienced a flow diversion when the licensee opened the upstream containment spray isolation header valve to fill the containment spray riser. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2011-3350 and CR-WF3-2011-5841. The immediate corrective action included the closure of the upstream isolation valve and the initiation of a work order to address seat leakage on the stop check valve CS-117. The planned corrective action includes the development of an augmented test to determine appropriate seat leakage criteria for the stop check valve.

The finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors performed the initial significance determination using NRC Inspection Manual 0609, Attachment 0609.04, “Phase 1 – Initial Screening and Characterization of Findings.” The initial screening directed the inspectors to use Attachment 1 of Appendix G, “Shutdown Operations Significance Determination Process,” since the degraded stop check valve upsets plant stability and challenge critical safety functions during shutdown conditions. The inspectors evaluated the significance of the finding and determined that it did not require a quantitative assessment because adequate mitigating equipment remained available and the finding did not constitute a loss of control, as defined in Appendix G. Therefore, the inspectors determined that the finding is of very low safety significance (Green). This finding did not have a cross-cutting aspect associated with it because the licensee established the check valve condition monitoring program prior to the past three years. Therefore it is not reflective of current plant performance. (Section 1R20.2)

Inspection Report# : 2011004 *(pdf)*

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: FIN Finding
Failure to Follow Apparent Cause Evaluation Process Procedure
The inspectors identified a finding because the licensee did not implement procedure EN-LI-119, “Apparent Cause Evaluation Process.” Specifically, the licensee did not follow the requirements provided in procedure EN-LI-119, Section 5.3.3 (k), to complete corrective actions in a timely manner for the intersystem leakage in the gas waste management system. As a result, no corrective action implementation occurred prior to additional equipment failures for the system. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2011-0934. The immediate corrective action included the reevaluation of the causal determination and development of an implementation plan to complete the corrective actions in a timely manner.

The finding is more than minor because it is associated with the protection against external factors attribute of the Initiating Events cornerstone and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The intersystem leakage of the gas decay tanks increase the likelihood of a potential explosive mixture and continued to challenge technical specification oxygen concentration limits. The inspectors performed the initial significance determination using NRC Inspection Manual 0609, Attachment 0609.04, “Phase 1 – Initial Screening and Characterization of Findings.” The Initial screening directed the inspectors to use Appendix F, “Fire Protection Significance Determination Process,” because the finding is a contributor to a fire initiation event. The inspectors assigned a degradation rating of low to the finding since the oxygen concentration levels in the gas decay tanks were below the limit of an explosive mixture. The inspectors determined that the finding is of very low safety significance (Green) because the finding minimally impacted the fire protection capabilities of the fire area. This finding has a cross-cutting aspect in the resources component of the human performance area in that the licensee did not minimize long-standing equipment issues and maintenance deferrals [H.2(a)]. (Section 4OA2.3(2))

Inspection Report# : 2011004 *(pdf)*

Significance: SL-IV Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Update the FSAR following Modifications to the Reactor Coolant Pump Vapor Seals.
The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.71(e) because the licensee did not revise the final safety analysis report (FSAR) as updated with information consistent with plant conditions. Specifically, the licensee did not update Section 5.4.1.3 of the FSAR for Waterford Steam Electric Station, Unit 3 following modifications to the reactor coolant pump vapor seals in 2007 and 2009, respectively. As a result, the licensee did not promptly identify and correct FSAR noncompliance. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2010-7421. The planned corrective actions include revising the FSAR as updated and replacing the degraded reactor coolant pump seals during the next two refueling outages.

The inspectors considered this issue to be within the traditional enforcement process because it has the potential to impede or impact the NRC's ability to perform its regulatory function. The inspectors used the NRC Enforcement Policy to evaluate the significance of this violation. The inspectors concluded that the violation is more than minor because the longstanding and incorrect information in the FSAR as updated had a material impact on safety and licensed activities. The material impact is that the modifications created a reactor coolant pump seal loss of coolant accident likelihood inside containment, which could have potentially impacted licensed activities. The inspectors determined the violation is a Severity Level IV (very low safety significance) since the erroneous information not updated in the FSAR was not used to make an unacceptable change to the facility nor impacted a licensing or safety decision by the NRC. The inspectors determined there is a cross-cutting aspect in the corrective action component of the problem identification and resolution area. Specifically, the licensee did not thoroughly evaluate and take adequate actions in a timely manner to update the FSAR to be consistent with plant conditions [P.1.c of IMC 0310] (Section 1R18).

Inspection Report# : 2011003 *(pdf)*

Significance: G Jun 30, 2011
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to Implement Work Order Instructions to Restore a Feedwater Heater Drain Valve.
A self-revealing finding occurred because maintenance personnel did not follow written procedures during the calibration of a level switch that controls feedwater heater drain valve FHD703A. Specifically, the licensee did not perform concurrent verification checks as required by documented work order instructions (WO-00180716) to ensure that personnel restore manipulate components to the correct position following maintenance. As a result, the feedwater heater drain valve remained in a closed manipulate state, which caused a spurious isolation of a string of feedwater heaters. The isolation of the feedwater heaters caused operators to down power the reactor to approximately 72 percent. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2009-7420. The immediate corrective actions included restoring the feedwater heater drain valve to its proper position.

The finding is more than minor because it is associated with the human performance attribute of the Initiating Events cornerstone and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the human error caused an event that upset plant stability during power operation. The inspectors evaluated this finding using IMC 0609 Attachment 4, “Phase 1 – Initial Screening and Characterization of Findings.” The inspectors determined that the finding is of very low safety significance (Green) because it does not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. The finding has a cross-cutting aspect in the work practices component of the human performance area because the licensee’s personnel proceed in the face of uncertainty or unexpected circumstances [H.4.a of IMC 0310] (Section 4OA2.3).

Inspection Report# : 2011003 *(pdf)*

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to follow Operability Determination Process for a Degraded and Non-Conforming condition Related to Reactor Coolant Pump N9000 Seals
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 adequately implement the operability determination process requirements in accordance with EN-OP-104, “Operability Determination Process.” Specifically, the licensee did not monitor a degraded and non-conformance condition associated with the reactor coolant pump N-9000 stage seals as required by EN-OP-104. As a result, the licensee did not perform a new operability determination after assumptions and compensatory measures identified in the original operability determination changed. This also led to compliance issues with technical specifications and missed maintenance rule functional failures. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2011-1965. The immediate corrective actions included revising the operability determination to account for the current configuration. The planned corrective actions included the licensee replacing the degraded reactor coolant pump seals during the next two refueling outages.

The finding is more than minor because it is associated with the equipment performance attribute of the initiating events cornerstone and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the licensee did not frequently and regularly review a degraded and nonconforming condition that had the potential to lead to a small loss of coolant accident. The inspectors evaluated this finding using IMC 0609 Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors determined that the finding is of very low safety significance (Green) because it is not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train greater than its technical specification completion time, and did not screen as potentially risk significant due to external events. The finding has a cross-cutting aspect in the corrective action program component of the problem identification and resolution area because the licensee did not thoroughly evaluate problems such that the resolutions address causes and extent of conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality.

Inspection Report# : 2011002 *(pdf)*

Mitigating Systems

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Evaluate and Adequately Perform Preventive Maintenance Activities Assiocated with the Dry Cooling Tower Process Analog Control Cards
The inspectors identified a non-cited violation of 10 CFR 50.65 (a)(3) because the licensee did not adequately evaluate and take into account, where practical, industry operating experience related to preventive maintenance activities for the dry cooling tower process analog control cards. Specifically, internal and industry-wide operating experience documented previous failures of process analog control cards due to age-related degradation after about 15 years of services. The vendor and industry performed a benchmark in 2003, and noted that the average service life is about 12 to 15 years. The licensee initially provided a preventive maintenance activity to replace the cards on a 20 year interval. However, the licensee deleted the preventive maintenance activities in March of 2009. The licensee determined that the cards were non-critical and had no justification of deleting the preventive maintenance activities. The inspectors noted that after the deletion of the preventive maintenance activities and prior to the 15 year service internal, the licensee experienced additional unplanned failures of several process analog control cards that challenged dry cooling tower reliability. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2011-1356. The immediate corrective action includes the evaluation of the preventive maintenance activity for the dry cooling tower process analog control cards. The planned corrective action includes the reinstatement of the preventive maintenance activity that aligns with industry operating experience.

The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The process analog control card failures challenged the system availability and reliability. The inspectors performed the initial significance determination using NRC Inspection Manual Chapter 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors determined that the finding is of very low safety significance (Green) because the condition is not a design or qualification deficiency, did not represent the loss of a system safety function, did not represent an actual loss of a single train of equipment for more than its Technical Specification completion time, and did not screen as potentially risk-significant due to an external initiating event. This finding has a cross-cutting aspect in the operating experience component of the problem identification and resolution area in that the licensee did not implement and institutionalizes operating experience through change to station processes, procedures, equipment, and training programs [P.2(b)]. (Section 1R12)

Inspection Report# : 2011004 *(pdf)*

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Promptly Identify and Correct Work Order Instructions used for Technical Specification Surveillance Procedures
The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," because the licensee did not promptly identify and correct work order instructions used to perform technical specification surveillance requirements. Specifically, the licensee did not provide adequate work order instructions or acceptance criteria to perform technical specification surveillance requirements associated with safety-related dry cooling tower fans and control room air handling units. The inspectors initially identified the issue of concern with the control room air handling units in December 2010. However, the licensee did not perform an adequate extent of condition review to determine if other work order instructions used to perform technical specification surveillance requirements contained adequate instructions and acceptance criteria. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2010-7223 and CR-WF3-2011-6254. The immediate corrective actions include revisions to the work order instructions in order to provide appropriate quantitative and qualitative acceptance criteria.

The finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the inspectors concluded that without appropriate quantitative and qualitative acceptance criteria this would affect the availability, reliability, and capability of the dry cooling tower fans and control room air handling units. The inspectors evaluated this finding using NRC Inspection Manual Chapter 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors determined that the finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train for greater than its technical specification completion time, and did not screen potentially risk significant due to external events. The finding has a cross-cutting aspect in corrective action program component of the problem identification and resolution area because the licensee did not thoroughly evaluate problems such that the resolutions address causes and extent of conditions, as necessary [P.1(c)]. (Section 1R22.1)

Inspection Report# : 2011004 *(pdf)*

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Comply with Technical Specification Surveillance Requirement 4.0.3 and the Limiting Conditions for Operation for Technical Specifications 3.0.3
The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," because the licensee did not promptly identify and correct work order instructions used to perform technical specification surveillance requirements. Specifically, the licensee did not provide adequate work order instructions or acceptance criteria to perform technical specification surveillance requirements associated with safety-related dry cooling tower fans and control room air handling units. The inspectors initially identified the issue of concern with the control room air handling units in December 2010. However, the licensee did not perform an adequate extent of condition review to determine if other work order instructions used to perform technical specification surveillance requirements contained adequate instructions and acceptance criteria. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2010-7223 and CR-WF3-2011-6254. The immediate corrective actions include revisions to the work order instructions in order to provide appropriate quantitative and qualitative acceptance criteria.

The finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the inspectors concluded that without appropriate quantitative and qualitative acceptance criteria this would affect the availability, reliability, and capability of the dry cooling tower fans and control room air handling units. The inspectors evaluated this finding using NRC Inspection Manual Chapter 0609, Attachment 0609.04, "Phase 1 – Initial Screening and

Characterization of Findings." The inspectors determined that the finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train for greater than its technical specification completion time, and did not screen potentially risk significant due to external events. The finding has a cross-cutting aspect in corrective action program component of the problem identification and resolution area because the licensee did not thoroughly evaluate problems such that the resolutions address causes and extent of conditions, as necessary [P.1(c)]. (Section 1R22.1)

Inspection Report# : 2011004 *(pdf)*

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Untimely Actions to Correct Repetitive Dry Cooling Tower Fan Failures
The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because the licensee did not promptly correct a condition adverse to quality related to repetitive failures of the dry cooling tower fans to start and run in fast speed. Specifically, the licensee did not perform corrective actions to resolve the failure mechanism of the fast speed breaker relay in a timely manner. As a result, additional failures occurred over a period of several years prior to the implementation of corrective action in March 2011. The licensee entered this issue into their corrective action program for resolution as CR-WF3- 2011-2546. The corrective action includes a plan to replace the affected components inside the dry cooling tower fan breakers with a new design.

The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the inspectors concluded that the reoccurrence of the problem challenged the reliability, and capability of the dry cooling tower fans. The inspectors performed the initial significance determination for the failure to start the dry cooling tower fans in fast speed using NRC Inspection Manual Chapter 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The Initial screening directed the inspectors to use Attachment 1 of Appendix G, "Shutdown Operations Significance Determination Process," based on fact that the failures of the breaker relay to start in fast speed occurred during refueling outages. The inspectors determined that the finding was of very low safety significance (Green) because it did not require a quantitative assessment since adequate mitigating equipment remained available and it did not constitute a loss of control, as defined in Appendix G. This finding has a cross-cutting aspect in the resource component of the human performance area in that the licensee did not minimize long-standing equipment issues and maintenance deferrals [H.2(a)]. (Section 4OA2.3(1))

Inspection Report# : 2011004 *(pdf)*

Significance: SL-IV Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Submit an LER within 60 days after Discovery of an Event
The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because the licensee did not promptly correct a condition adverse to quality related to repetitive failures of the dry cooling tower fans to start and run in fast speed. Specifically, the licensee did not perform corrective actions to resolve the failure mechanism of the fast speed breaker relay in a timely manner. As a result, additional failures occurred over a period of several years prior to the implementation of corrective action in March 2011. The licensee entered this issue into their corrective action program for resolution as CR-WF3- 2011-2546. The corrective action includes a plan to replace the affected components inside the dry cooling tower fan breakers with a new design.

The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the inspectors concluded that the reoccurrence of the problem challenged the reliability, and capability of the dry cooling tower fans. The inspectors performed the initial significance determination for the failure to start the dry cooling tower fans in fast speed using NRC Inspection Manual Chapter 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The Initial screening directed the inspectors to use Attachment 1 of Appendix G, "Shutdown Operations

Significance Determination Process," based on fact that the failures of the breaker relay to start in fast speed occurred during refueling outages. The inspectors determined that the finding was of very low safety significance (Green) because it did not require a quantitative assessment since adequate mitigating equipment remained available and it did not constitute a loss of control, as defined in Appendix G. This finding has a cross-cutting aspect in the resource component of the human performance area in that the licensee did not minimize long-standing equipment issues and maintenance deferrals [H.2(a)]. (Section 4OA2.3(1))

Inspection Report# : 2011004 *(pdf)*

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Evaluate and Adequately Monitor Activities Associated with the Internal Conditions of the Condensate and Refueling Water Storage Pool Structures.
The inspectors identified a non-cited violation of 10 CFR 50.65(a)(3) because the licensee did not evaluate or adequately monitor activities associated with the condition of the condensate and refueling water storage pools structures. Specifically, the licensee did not evaluate the internal condition of the storage pools through the performance of appropriate preventive maintenance activities and did not evaluate these activities at least every refueling cycle, where practical, for industry-wide operating experience. As a result, there is no preventive maintenance developed for this activity when previous industry-wide operating experience documented previous issues of concrete deterioration due to contact with boric acid over a long period of time. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2011-1168. The planned corrective actions include the development of appropriate preventive maintenance activities to examine the internal conditions of the storage pool structures during the refuel outages.

The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, with no preventive maintenance to monitor the internal conditions of the storage pools, this would impact the reliability of the structures. The inspectors evaluated this finding using IMC 0609 Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors determined that the finding is of very low safety significance (Green) because the finding is not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train greater than it technical specification completion time, and did not screen potentially risk significant due to external events. The finding has a cross-cutting aspect in the operating experience component of the problem identification and resolution area because the licensee did not implement and institutionalizes operating experience through changes to station processes, procedures, equipment, and training programs [P.2.b of IMC 0310] (Section 1R12).

Inspection Report# : 2011003 *(pdf)*

Significance: G Jun 30, 2011
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Implement Written Procedures for Restoring a Time Delay Relay Associated with the 'A' Emergency Diesel Generator Output Breaker.
A self-revealing non-cited violation of Technical Specification 6.8.1.a occurred because the licensee did not implement written procedures and instructions. Specifically, maintenance personnel did not follow procedure ME-007-005, "Time Delay Relay Setting Check, Adjustment, and Functional Test", during the lifting leads process for restoration of a time delay relay (EG EREL2327-C) associated with the 'A' emergency diesel generator (EDG) maintenance activity. As a result, the 'A' EDG output breaker did not automatically close during technical specification surveillance testing because the leads on the relay were wired incorrectly. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2011-3190. The immediate corrective action included the re-wiring of the relay.

The finding is more than minor because it is associated with the human and equipment performance attributes of the

Mitigating Systems Cornerstone and affects the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the licensee did not ensure the availability, reliability and capability of the 'A' EDG through human error prevention techniques. The senior resident inspector performed the initial significance determination for the diesel generator output breaker failure. The inspector used the NRC IMC 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The finding screened to a Phase 2 significance determination because it involved a potential loss of one train of safety related equipment for longer than the technical specification allowed outage time. A Region IV senior reactor analyst performed a Phase 2 significance determination and used the pre-solved worksheet from the "Risk Informed Inspection Notebook for the Waterford-3 Nuclear Power Plant," Revision 2.01a. The senior reactor analyst considered the output breaker a part of the emergency diesel generator component boundary. Assuming a one year exposure period, the finding was potentially Yellow, which warranted further review. Therefore, the senior reactor analyst performed a bounding Phase 3 significance determination. The analyst determined that the finding was of very low safety significance (Green). The bounding change to the core damage frequency was approximately 5.4E-7/year. The dominant core damage sequences included loss of offsite power events, failure of the output breaker recovery action, independent failure of the other emergency diesel generator and failure to recover offsite power in 4 hours. Equipment that helped mitigate the risk included the ability of an operator to recover the output breaker. The finding has a cross-cutting aspect in the work practices component of the human performance area because the licensee did not communicate human performance error prevention techniques, such as self and peer checking, and proper documentation of activities [H.4.a of IMC 0310] (Section 1R19).

Inspection Report# : 2011003 *(pdf)*

Significance: G Dec 31, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Conduct Timely Corrective Actions to Replace Degraded Diodes in Safety Related Inverters
A self-revealing non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," occurred because the licensee did not promptly correct a condition adverse to quality that affected static uninterruptible power supply inverters used to power vital and safety related loads. Specifically, the licensee did not conduct timely corrective actions following identification of degraded diodes in static uninterruptible power supplies A and B, respectively. As a result, this led to another failure of the static uninterruptible power supply A. The licensee entered this issue into their corrective action program (CAP) for resolution as CR-WF3-2010-6760. The immediate corrective actions following the additional failure included installation of newly tested diodes from a different batch, new fuses and a new silicon controlled rectifier. The planned corrective actions included implementation of an increased condition based testing preventive maintenance frequency and a maintenance activity to perform pre-installation testing on all new diodes and rectifiers.

This finding is greater than minor because it is associated with the equipment performance attribute of the Mitigating System cornerstone and affects the cornerstone objective to ensure the availability and reliability of static uninterruptible power supply inverters that respond to initiating events to prevent undesirable consequences in that these inverters supply power to vital and safety related loads. The inspectors evaluated the significance of this finding using Phase 1 of the IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations" given the importance of the system and the fact that this condition affects both static uninterruptible power supplies A and B. The inspectors determined that the finding was of very low safety significance (Green) because it is not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train greater than it Technical Specification allowed outage time, and did not screen as potentially risk significant due to external events. This finding has a crosscutting aspect in the decision-making component of human performance because the licensee did not make safety-significant or risk-significant decisions using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained.

Inspection Report# : 2010005 *(pdf)*

Barrier Integrity

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Control Room Envelope Preconditioning
The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, “Test Control,” because the licensee did not conduct required technical specification surveillance testing on equipment in an as-found condition. Specifically, the licensee performed corrective maintenance (preconditioning) on the system to achieve better results, prior to completing the surveillance. The licensee entered this issue into their corrective action program for resolution as CR-WF3-2011-1927. The immediate corrective action included the performance of the control room envelope tracer gas test.

The finding is more than minor because it is associated with the barrier performance attribute of the barrier integrity cornerstone and affects the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the licensee did not properly perform testing on equipment to evaluate barrier performance. The inspectors evaluated this finding using IMC 0609 Attachment 4, “Phase 1 – Initial Screening and Characterization of Findings.” The inspectors determined that the finding is of very low safety significance (Green) because the finding doesn’t represent a degradation of the radiological barrier, or the smoke and toxic gas barrier functions provided for the control room. The finding has a cross-cutting aspect in the work control component of the human performance area because the licensee did not appropriately plan work activities by incorporating the need for planned contingencies, compensatory actions, and abort criteria [H.3.a of IMC 0310] (Section 1R22).

Inspection Report# : 2011002 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: W Aug 10, 2011
Identified By: NRC
Item Type: FIN Finding
Failure To Use Effective Engineering Controls As Part Of Pre-Job Planning To Reduce Contamination And Subsequent Exposure
(Draft) • TBD. The inspectors identified an apparent White finding because the
licensee failed to use effective engineering controls as part of pre-job
planning to reduce contamination and subsequent exposure. The primary reason for the dose overage was the licensee’s failure to prevent radioactive water from leaking into work areas and raising radiation dose rates. As corrective action, the licensee installed a trough system to collect and route the radioactive water away from the work area and to the reactor containment floor drain system. This issue was placed in the corrective action program as Condition Report CR-WF3-2011-05672.

The failure to use effective engineering controls as part of pre-job planning to reduce contamination and subsequent exposure is a performance deficiency. The finding is more than minor because it was similar to (the more than minor) Example 6.i in Inspection Manual Chapter 0612, Appendix E, “Example of Minor Issues,” in that the actual collective dose exceeded 5 person-rem and exceeded the planned, intended dose by more than 50 percent. Additionally, the finding is associated with the program and process attribute of the Occupational Radiation Safety cornerstone and affected the cornerstone objective in that it increased collective radiation dose. The inspectors used Inspection Manual Chapter 0609, Appendix C, “Occupational Radiation Safety Significance Determination Process,” to analyze the significance of the finding. The finding was preliminarily determined to be White (low to moderate safety significance) because it involved ALARA planning or work controls; the average collective dose at the time the

finding was identified was greater than 135 person-rem; and the actual dose associated with a work activity was greater than 25 person-rem. Alternately, there were greater than four occurrences in which the actual collective dose exceeded 5 person-rem and the estimated/planned dose by more than 50 percent. The final significance of this finding is to be determined. The finding had a crosscutting aspect in the area of problem identification and resolution, associated with the operating experience component, because the licensee did not institutionalize operating experience concerning the effects of reactor coolant pump leakage on work area dose rates [P2.(b)] (Section 2RS02).

November 17, 2011, the NRC forwarded a letter that stated the final significance determination of a White inspection finding in the Occupational Radiation Safety Cornerstone (ML11321A291, EA2011-142). This letter provides the final significance determination of the preliminary White finding discussed in NRC Inspection Report 05000382/2011009, dated August 24, 2011. The finding involved the failure to use effective engineering controls to reduce radioactive contamination and subsequent exposure. Waterford Steam Electric Station personnel failed to keep highly radioactive water from leaking onto the work areas around the reactor coolant pumps. This failure resulted in high levels of radioactive contamination and unexpected and unintended
radiation dose to plant workers.

Inspection Report# : 2011009 *(pdf)*

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

Last modified : January 17, 2012